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PUBLIC CEREMONY IN CELEBRATION OF THE TWENTY-FIFTH ANNIVERSARY OF THE PETER BENT BRIGHAM HOSPITAL

RADIO ANNOUNCER: This is an occasion in which the entire community should join. The Peter Bent Brigham Hospital has attained world-wide fame for its contribution to medical and surgical science as the result of research by its staff members. I shall call on Mr. William Amory, president of the Corporation, who will act as master of ceremonies and present the speakers.

MR. AMORY: Twenty-five years ago, the doors of the Peter Bent Brigham Hospital were opened and the key was thrown away. We are thankful for the opportunities for service which these years have brought to the hospital, and we are asking you to join in invoking the Almighty's blessing upon the hospital and the years which lie before it.

BISHOP WILLIAM LAWRENCE: Let us all join together in the Lord's Prayer. . . . Almighty and loving God, from whom cometh every good and perfect gift, for the twenty-five years of merciful service of this hospital, we give Thee hearty thanks; for the foundation by its founder, for the devotion of its officers, for the skill of its surgeons and physicians, for the patient and sympathetic care of its nurses and for the support of its friends, we praise Thee. We ask that those who go from this hospital throughout the world upon their work of healing may be in character and skill ministers of truth and mercy, and that the thanks of those who have found help within these wards may bring happiness to others. May the Holy Spirit, comfort and strength dwell in this hospital from generation to generation. Amen.

MR. AMORY: According to the hospital's charter, two members of the Board of Incorporators are appointed by the governor. Unfortunately, His Excellency, the Governor of Massachusetts, is unable to attend, but he has appointed General Charles Cole to speak in his behalf.

GENERAL COLE: Governor Hurley regrets exceedingly that he could not be here in person, and he has asked me to read to you his address:

Held, on May 7, 1938, in a marquee erected on Shattuck Street between the Peter Bent Brigham Hospital and the Harvard Medical School, Boston.

As Governor of the Commonwealth, I am pleased to join with the many distinguished guests and friends who are here to celebrate the twenty-fifth anniversary of the service of the Peter Bent Brigham Hospital to the public. The citizens of Boston and also of Massachusetts owe a debt of gratitude to the founder, Peter Bent Brigham, and also to the officers of the hospital who have so faithfully adhered to his purpose during this twenty-five years of operation. Although the hospital was founded for the purpose of "establishing and maintaining a hospital for the care of sick persons in indigent circumstances residing in the County of Suffolk," many of the patients have come from other parts of the Commonwealth. It has the proud record of having given more free medical and surgical service in proportion to its size to residents of Suffolk County than any other privately supported hospital in the community, and such service has been rendered by men and women whose high standing in the field of medicine are nationally recognized. Also, owing in part to the work of Dr. Cushing in brain surgery and to the services rendered during the war by the medical unit which he organized and headed, composed in large part of members of the hospital staff, and in part to the distinguished service of Miss Carrie M. Hall, then superintendent of nurses, the reputation of the hospital is international as well. Therefore, as chief executive of this great state, it is my privilege to convey to the officers of Peter Bent Brigham Hospital a message of heartfelt thanks for its quarter of a century of noble work and to predict an even greater service to our citizens in the years to come.

Maurice J. Tobin, Mayor of Boston, arrived too late to speak; he had prepared the following address:

Since I took office as mayor of Boston some four months ago I have brought to many gatherings within our city the official greetings of the City of Boston. Today I also bring the

official greeting of the great old City of Boston, and in addition I bring my own sincere, personal greetings to those noble men and women, who for the past twenty-five years have given of their time, their talent and their energies that suffering humanity might be lightened of its burdens, and have shown the way to sounder bodies and more peaceful minds.

For a full twenty-five years the Peter Bent Brigham Hospital, and all those connected with it during those long years, have provided a service and performed obligations that cannot be measured in terms of money or material things. What has been accomplished in this great hospital — how many bodies have been restored to normal usefulness, how much pain and suffering and misery have found their termination within the walls of this hospital building — can never be written in any book by any mortal hand. Only the Creator of all things who keeps the great white book knows and can measure the good work that has been done in this hospital, and in most hospitals, and all in the name of humanity.

I am doubly happy coming here today, for I grew up almost in the shadow of this hospital. I can recall the empty lot where it now stands. I can recall its building, and how it arose brick by brick to become a beacon to those afflicted with sickness and pain. I can recall numerous incidents of my youthful days concerning those who found here the willing hands, the understanding sympathy and the skill which has given to this great hospital a reputation held in high esteem throughout the whole of our United States.

Deep within me is a profound feeling of gratitude, and I speak now not as mayor of this city especially, but as one who knows from personal knowledge of the great good done in this hospital — a gratitude toward that great philanthropist Peter Bent Brigham, whose generosity and humane principles and impulses made possible its erection. I know that in the world where he now resides in eternal rest he must be looking down upon this creation of his vision, and must be sending to all those here who have had a part in its work his silent thanks and his personal benediction.

We here in Boston are indeed a fortunate people. We have some of the greatest hospitals in the entire world. We have the finest medical schools in our land. We have without doubt the most skillful medical men to be found in any similar area on the globe. We are, nevertheless, likely to pass over these advantages and accept them as our rightful heritage. We are apt to give little thought, until moments like these, of the tremendous value of these advantages and of the great protection and security they obtain for our community and its inhabitants. I was very happy, just recently, to be informed that Boston has been credited as being the most healthful city in the whole United States. We have here remarkable facilities for the care of the sick and the injured. We have in Boston a series of health units built through the generosity of another great philanthropist, George Robert White, whose name should always be revered by the residents of our city. We have one of the greatest, if not the greatest, of the municipal hospitals in the world — a group of magnificent buildings raising their towers to the sky and each day providing surcease from pain, and hope to those who come within their portals. We have here in our city men and women who have dedicated their lives to the medical profession and have given freely and tirelessly of their time and their efforts.

In this great community of ours, having within its borders every conceivable facility for the care and preservation of life, and blessed with men and women who have the tradition, the pride, the talent and the nobility of purpose to make possible the full use of those facilities, the Peter Bent Brigham Hospital takes its place in the front rank.

To the members of the corporation, both past and present, and to all those who have contributed in any way, great or small, to the wonderful work and results accomplished here during the past twenty-five years, let me offer you the thanks of a grateful people. No one need tell me of your accomplishments, for I have seen this hospital grow out of nothing, until today it stands a monumental tribute to those who truly attempt to follow the precept of the Divine Master, who will not forget those who have given even a cup of water in his name and in the name of our brother man.

MR. AMORY: At this hospital we have a unique custom; each year we invite two men, heads of the outstanding hospitals in this country and in Europe, to come to us as surgeon-in-chief pro tem and physician-in-chief pro tem for one week. From these honored visitors, we draw rich and valuable inspiration. We have with us today the man, Dr. Dean Lewis, who served as our first surgeon-in-chief pro tem. He is surgeon-in-chief of the Johns Hopkins Hospital, and professor of surgery in the Johns Hopkins University School of Medicine.

DR. LEWIS: The Peter Bent Brigham Hospital is to be congratulated upon celebrating the twenty-fifth anniversary of the opening of its doors to patients, medical students, nurses and the profession. It is a pleasure for me to bring the felicitations of the Johns Hopkins Hospital — a sister institution, which might be called a blood relation. Your first

professor of surgery, Dr. Harvey Cushing, spent some years there. A graduate of the Harvard Medical School, he was apparently attracted to the Hopkins surgical clinic by the chief, who had introduced the resident system and was interested in a new type of surgery. Speed was sacrificed to care and thoroughness. Deliberate study had replaced haste, and it was not uncommon to call it a day when one case had been carefully studied and discussed. Seed fell on fertile ground. The Johns Hopkins Hospital is greatly indebted to Dr. Cushing for the Hunterian Laboratory of Experimental Surgery, the earliest established in this country and the direct result of his efforts. Dr. Cushing, while connected with Hopkins, laid the foundations of modern neurosurgery, and the completed structure was erected while he was serving as chief in the Peter Bent Brigham Hospital. This school of surgery has exerted a world-wide influence. No greater compliment can be paid a surgeon than to say that he has developed a school. Langenbeck, Billroth, Halsted and Cushing are recognized as having developed schools of surgery. They gave the younger men a chance to develop and exerted an often unrealized influence upon them. Your physician-in-chief is a Hopkins graduate. He early recognized that pathology formed the foundation of clinical medicine and prepared himself, so that when opportunity beckoned, he was ready. The dean of your medical school was on the medical service, and we are selfish enough to take some credit for the successful administration of the office to which he has been appointed. The interchange of staff and students will work to the advantage of both institutions.

Several years ago, I felt greatly complimented when Dr. Cushing asked me to take his clinic for two weeks. During that time I received a good education. I not infrequently meet Peter Bent Brigham alumni, and they speak of the work during those two weeks. It must have been very good or very bad. They do not say which, but mediocrity is soon forgotten. The Peter Bent Brigham has performed the functions of a hospital well. The students have learned medicine. They have been given clinical and laboratory facilities and have applied themselves. They have not been taught too much. The nurses have been well trained. The clinic has furnished problems, which the laboratory has been used to solve. Young men have been trained in the resident system, so that they have been prepared to take the places of those of the older generation when they faltered and dropped from the ranks, and the patient has received the most modern and scientific care which is known. What more need be said?

Peter Bent Brigham — young in years, old in experience, a giant in achievement — I trust that in the years to come all your wishes may be fulfilled, all your dreams come true.

MR. AMORY: Behind you lies the Harvard Medical School, the leading institution of its kind in our nation. Harvard was far-sighted enough when it built the medical school to secure control of a large tract of surrounding land. On this land have subsequently been built numerous hospitals, first among them the Peter Bent Brigham Hospital. Ever since that time, the relation between the medical school and the hospital has been close and happy. Its students are taught in our wards, our professional staff are teachers in its classrooms. We welcome at this ceremony the president of Harvard University, Mr. James B. Conant.

PRESIDENT CONANT: As the official representative of the President and Fellows of Harvard University, I am happy to be here this morning. It is my duty and privilege to bring to the trustees and staff of the Peter Bent Brigham Hospital sincerest congratulations on this their twenty-fifth birthday. If I may indulge in the luxury of generalizing from a single instance, namely the history of the institution I represent, I can assure the trustees that the first fifty years are much the most difficult. If twenty-five years from now this hospital is prosperous and thriving, then those gathered on that occasion can consider the pioneering task to be finished. So today the race is in a sense half over, and we applaud past accomplishment and cheer the good work on.

The inter-relation of the Harvard Medical School and the Peter Bent Brigham Hospital has been intimate and cordial from the start. I need not enter into the history of the past twenty-five years. Our debt to the hospital is great and we value its cooperation. The Harvard Medical School, together with the other medical schools located in this city, can flourish only as the many hospitals with which they are associated flourish. The connection involves not only research and the teaching of candidates for the M.D. degree, but the long processes of education carried out by the hospitals themselves through their internships. Without these institutions medical education in this community would cease. All of us must therefore wish them well. We must rejoice at the successful accomplishment of twenty-five years of service by the Peter Bent Brigham Hospital, and convey to this institution many happy and prosperous returns of the day. May the hospitals of this city which serve us so well continue to receive the whole-hearted support of the inhabitants of Greater Boston.

MR. AMORY: And now the hospital hears the story of its first twenty-five years. You shall hear

the story of the hospital's work and growth in medicine from the lips of its first and only physician-in-chief, who is also Hersey Professor of the Theory and Practice of Physic at Harvard Medical School, and whose fine abilities have contributed much to our growth and usefulness: Dr. Henry A. Christian.

DR. CHRISTIAN: Here in this open space between medical school and hospital, where automobiles daily pass, pause or park, is a fitting place for us to gather, to ponder on what the future may have in store for the Peter Bent Brigham Hospital, based on its quarter century of accomplishment, and how these possibilities may be converted into actualities. On one side of us rise the pillared marble façades of the Harvard Medical School, typifying education and investigation in the science and art of medicine, whence, as from other medical schools scattered over this fair land of ours, come to us, in the hospital, inspiration, factual knowledge and individuals trained to broaden their somewhat theoretical concepts of medicine by application in the daily care of humanity, sick of mind or body. On the other side stands the group of somewhat squat, red-brick and stucco structures of the Peter Bent Brigham Hospital, through which daily pass many men and women seeking surcease from suffering, guided in their quest by physicians and nurses, each of whom is being trained in various ways to carry near and far a gospel of healing that makes health of mind and body its objective, either by individual ministrations or by the discovery of new and better measures applicable widely to communities and their component individuals.

Marble, as in the days of the grandeur of Grecian sculpture and architecture, stands for the ideal, but an ideal that possesses solidity and permanence; red bricks indicate practicality of use and purpose, but a practicality that can, in form and line, take on inspirational qualities. Both marble and brick serve to encompass the spirit of those that work within, a spirit that can transcend the material when, and only when, its objective is worthy and is a spirit based on a simple faith. The automobiles that usually are here typify the restless activity necessary to forward progress in medicine, be it concerned with investigation or with the application of the art of medicine to the care of patients.

Twenty-five years ago, the Peter Bent Brigham Hospital opened its doors to patients as the result of the will of Peter Bent Brigham, who died in 1877, which left a considerable sum of money "for the purpose of founding a hospital in said Boston, to be called the Brigham Hospital, for the care of sick persons in indigent circumstances, residing in the said County of Suffolk."

This clause is the enzyme, if I may use a medical term, the energizer, the spark plug, if I may return again to the symbolism of the automobile, that started the hospital; all honor to this wise donor for what he did. His bequest, under the guiding hand of the late Herbert B. Howard, our first superintendent, built the hospital; in the twenty-five years since its opening, the Peter Bent Brigham Hospital in the care of bed and ambulatory patients has expended over twelve million dollars; of this sum, about one third has come from the bequest of Peter Bent Brigham, and two thirds from individuals, largely citizens of this community, many of them actual patients. A very considerable part of the latter share since 1933, I am glad to say, has come to us from the Community Federation of Boston. Started thus by the enzyme, the spark plug, of the beneficence of its founder, an ever-increasing increment of the fuel that drives the hospital machinery is coming from the community. In 1913, it might have been said that this was the hospital of Peter Bent Brigham; today, obviously, ladies and gentlemen, representatives of this community, doing us honor by your presence here, the Peter Bent Brigham Hospital is your hospital, and as the years of the future unroll, ever more and more will this be the situation — your hospital to support, your hospital to encourage, your hospital to cherish and be proud of.

What is and should be a hospital? Four hundred and twenty odd years ago, Sir Thomas Moore quaintly, delightfully, correctly characterized hospitals in these words: "These hospitals be so well appointed and with all things necessary to health, so furnished, and moreover, so diligently attended through the continual presence of cunning physicians, that, though no man be sent there against his will, yet, notwithstanding, there is no sick person in all the city that had not rather be there than at home in his own house." Such a hospital now for twenty-five years the Peter Bent Brigham Hospital has sought to be to Boston, and in this, it is my belief that it has, within the limitations of its means, succeeded well, not so well undoubtedly as those of its staff have felt it should, for they always with restless activity have been planning for betterments in all phases of hospital activity, diligently seeking better ways to do things and better methods of combating the ravages of disease, and so have suggested many improvements for which so far funds have not been available.

Sir Thomas Moore thought a hospital should be well appointed, "provided with all things necessary to health," foreseeing that the continued health of its patients should be the hospital's goal, this requiring more than the things needed in the care of illness. He emphasized the spirit in the care of patients that should prevail, a cheerful friendliness, so that "there is no sick person in all the

city that had not rather be there than at home in his own house." How often have our patients told us of the friendliness of the service that we have rendered to them, told of how nurses and doctors have shown a kindly, personal interest in their health, their surroundings and their individual activities. Management of illness is more than the giving of medicine or the performing of surgical operations; it is the finding out and rectifying, so far as humanly is possible, of all the disturbing factors in the patient's life. Often this requires much time and patience on the part of the staff to win the patient's confidence and find out what disturbs him; if disturbing factors are not discovered and managed, all too often the hospital stay fails to do the good it should; in this day and time the poor economic situation of a patient often may make impossible the cure otherwise attainable.

Modern medicine has developed complex, often costly, methods of studying patients in order that diagnosis be correct and treatment proper. The community has the right to expect in its hospitals provision for all of these; in final analysis, if they are provided, the community must, indirectly or directly, pay for all this. Costly it is but very worth while.

What in twenty-five years has the Peter Bent Brigham Hospital done to merit approbation and support from this community? Never has its door been closed to a single patient from Suffolk County, suitable for admission, whether or not that patient could pay something or nothing. To its wards up to April 1, have been admitted 104,521 patients; to its out-door department 1,495,878 visits have been made. Think of the mass of discomfort and disease all this represents, much of it alleviated by the ministrations of the Peter Bent Brigham Hospital. The Out-Door Department from the beginning has been open to receive patients all day. Very early in its history a system of service by appointment was arranged that enabled ambulatory patients to be seen with small loss of their time; in this development, the Peter Bent Brigham Hospital was a pioneer in this country; calculate, if you will, how many hours of weary waiting for the doctors thus have been saved our patients. Day and night the service for the patient goes on.

At the Founder's Day celebration in 1914 the late Mr. John P. Reynolds, a trustee, chairman of the building committee, in delivering a symbolic key to the president of the corporation characterized its meaning in these wisely sympathetic, prophetic words:

> Mr. President, may I remind you that it [the key] is symbolic, for never again, any day or any night, will the door of this hospital be locked. To the public, may it represent a master key, an open sesame to loose the door to manifold treasures for every sick and weary soul who seeks relief from pain. To us of the corporation, may it prove a key to the temple of wisdom that we may ever render the fittest and truest judgments. To our staff, let it be the key of knowledge that will unlock to them all that is closed and obscure. To the nurse, that ever-patient and watchful guide and friend, may it be the key to recovery, that her every charge may go forth, his whole soul pouring out in grateful thanks that joyous melody, that glorious strain, the wonder song of health.

Sir Thomas Moore used these words in his characterization of long ago: "diligently attended through the continual presence of cunning physicians." This idea the Peter Bent Brigham Hospital at the outset interpreted in its organization by providing a graded system of resident house officers in association with a group of assistant resident physicians, surgeons, roentgenologists and pathologists, each under the leadership of a resident, all working under the direction of a visiting staff, several of whom had their professional activities concentrated within the hospital by a provision of office quarters for their work. Thus was provided the continual presence of "cunning" physicians and, still more important, the opportunity and incentive for them to secure an increase in cunning. In 1913, such an organization was entirely unique in the United States.

"Increase in cunning" denotes training, education. The training and education that the Peter Bent Brigham Hospital has given to undergraduate medical students, to returning medical graduates, to house officers, assistant residents and residents and to nurses, is one of our greatest prides in accomplishment; we take pride in the fact that in twenty-five years we have sent out one hundred and fifty-eight graduates good enough to be made professors, associate professors or assistant professors in medical schools, not alone in the United States but in England, Canada, Sweden, China and India — a very goodly number, when you recall that recent graduates have had but time to reach out for, or get a foot on, the lower rungs of the ladder of academic preferment, and all have been within our walls within a twenty-five-year period.

Earlier in my remarks I referred to the "discovery of new and better measures applicable widely to communities and their component individuals." What of this at the Peter Bent Brigham Hospital? At the opening of the hospital was installed an electrocardiograph, the first in a general hospital in this country. Its use has taught us much about heart disease and its management. Today its adoption has become so general that without one the cardiologist no longer would be recognized as one with specialized skill in the care of patients with heart disease. In this hospital, too, we gave to one of the first patients admitted to the medical service, a man with heart disease, that form of digi-

talis which some twenty years later was accepted by the American Heart Association as the best preparation for general use.

At the Peter Bent Brigham Hospital in 1915 Dr. Chandler Walker began a series of studies of bronchial asthma destined to sound a keynote to modern methods of management and prevention of attacks of hay fever and asthma. In 1915 Dr. Walter Boothby commenced the clinical study of metabolism, later to develop into a method daily used in the diagnosis and as a guide to the treatment of goiter, until "What is your basal metabolism?" has become a query common to both clinic and drawing-room.

Should we not be proud that within our walls in the late summer and early autumn of 1925 the first patients, under the guidance of Drs. George Minot and William Murphy, at that time both members of our staff, began, through a diet containing liver, to eat their way back to health from the devastations of pernicious anemia, until then a necessarily fatal malady? From these humble beginnings, with the co-operation of the laboratories of our neighbor, the Harvard Medical School, there soon spread around the world knowledge of the use of liver and liver extracts by mouth or by injection in the treatment of pernicious anemia, to make possible a continued life of health for countless thousands previously surely doomed to a life of debility, certain to end in inescapable death. For this work in 1934 Drs. Minot and Murphy were made Nobel Laureates in Medicine and Physiology.

Recently in co-operation with the departments of biological and physical chemistry in the Harvard Medical School, with new methods, studies have been started that bid fair to throw much light on the nature of the proteins that are excreted by the kidneys in Bright's disease — studies which eventually may give us the secret of how to feed these patients that their systems may no longer be depleted of these substances, so necessary to the normal functioning of the body.

In the scientific work of the hospital the Department of Pathology under the wise leadership, first of the late Dr. William Councilman and later of Dr. S. Burt Wolbach, has continuously contributed help of the greatest importance, and studies from our laboratory of pathology in themselves are of high value. Dr. Wolbach's significant studies of the histologic changes resulting from vitamin deficiencies have been recognized everywhere as authoritative, and his knowledge has ever been of great aid in studies of our patients.

At the Peter Bent Brigham Hospital, Dr. Harvey Cushing developed the technic and perfected the diagnostic procedures that finally made brain surgery safe in the hands of surgeons scattered the world over. The story of this development and of other advances in surgery I shall leave to my cherished colleague, Dr. Elliott C. Cutler, the dynamic, delightful, brilliant successor of Dr. Cushing as surgeon-in-chief of the hospital.

The scientific work of the hospital since its inception will be found depicted in the publications of the staff in many medical journals. Gathered together these make fifty large volumes, and in addition there are a large number of books written by members of the staff. A perusal of these will give ample evidence of both the range and the quality of their investigations.

In the quarter century since we started we have trained seven hundred and seventy-four nurses. Some of these are doing private-duty nursing; many hold important directive posts in hospitals, public-health work and schools of nursing. Wherever they have gone they have made of their distinctive nurses' cap, designed by Miss Hall, our first superintendent of nurses, a recognized mark of nursing efficiency administered in a spirit of kindly, friendly, co-operative concern, of which we are justly proud.

In all the developments at the Peter Bent Brigham Hospital the administrative staff has played an important part. Dr. Howard, first and since 1919 Dr. Joseph B. Howland, with great wisdom and skill as superintendents, have directed all the complex business relations of the hospital in such a way as to make effective and pleasant the duties of the entire personnel. To them rightly goes much credit for what the hospital has accomplished.

In telling the story of the Peter Bent Brigham Hospital in Boston I have attempted to show you that in its first quarter century of activity it has measured up to the very high expectations of its founder and of those who planned its organization, in that it has contributed richly in medical investigation and to the education of doctors and nurses, ever keeping in mind that its first duty has been to bring help to suffering humanity.

In commencing another quarter century of activity, the Peter Bent Brigham Hospital asks of the community an increasing support in the belief that we have deserved your friendship, that our trustees will wisely use any funds put at their disposal, and that the accomplishments of its first quarter century betoken an ever-growing and ever-widening range of activity in medical education and in medical investigation, and continuously a better service to those in the community confronted with the problems incident to sickness. To alleviate the discomforts of disease, to better the health of the community in so far as this is possible for a hospital, is the major task we have set for ourselves;

to do this work we need the support of the community; this, to these ends we ask, that from our investigations may come vivifying knowledge of the secrets of disease and better measures for their prevention and cure, while our patients continue to go forth singing the joyous song of better health.

MR. AMORY: You have heard from Dr. Christian the medical side of our first quarter of a century. Now — a surgeon looks at the record. One of the hospital's early pupils, and since 1932, when he succeeded Dr. Cushing, its surgeon-in-chief, who is also Moseley Professor of Surgery at Harvard Medical School: Dr. Elliott C. Cutler.

DR. CUTLER: I speak as a pupil of this great hospital, and I speak with some trepidation before so many distinguished colleagues, who are also pupils of my predecessor and teacher, Dr. Harvey Cushing. The edifice which now lies behind me was erected by many hands, but to the original chiefs of service, Drs. Henry A. Christian and Harvey Cushing, must go the chief credit for the high position this hospital now holds in public and professional esteem.

We are assembled today to celebrate our twenty-fifth anniversary. This is the interval since our first patient was admitted, but if there be some here to whom greater age is a desirable status, let them use the Chinese method, whereby age is reckoned from the time of conception. For these individuals, the hospital celebrates today its sixtieth birthday, for it was over twenty-five years after Peter Bent Brigham died when the obstetricians were called upon to deliver this infant!

In America, where the people are wont to consider progress as synonymous with growth, size has become a fetish. In this respect, the Peter Bent Brigham Hospital has shown its independence. The original chiefs of service chose the number of beds which they felt was the optimum for two individuals to control. Comparative studies reveal that when one goes beyond the number of one hundred beds to a unit of professional service, it is wiser to have several units. This is revealed in the two units at the Massachusetts General Hospital and the six at the Boston City Hospital in their surgical services. Moreover, time has shown that in institutions of great size the individual tends to become lost, personalities fail to produce the effect they might in a smaller and therefore more homogenous gathering, and the tail begins to wag the dog, a motion troublesome to the higher centers of the brain. The dinosaurs and mammoths have gone while the bee and the ant survive.

The most important element in the elevation of this hospital to its present position, beyond the personalities involved, seems to center about the type of organization which was established from our beginnings. Here was set up a full-time service to the hospital which was an innovation in this country. A stricter modification of it was later suggested by Mr. Abraham Flexner and generously supported by the Rockefeller interests. There can be no denying that the hospital, the patient and the interests of scientific medicine are better served by such a singleness of purpose. This organization has seen people of all grades, from the chiefs of service to the house officers, working twenty-four hours a day for twenty-five years for the patients and the hospital. There was nothing else to distract the workers' interest, and they were fired to unusual efforts by the stimulating nature of their leaders. The intimate contacts between the chief and his pupil, daily and continuous, formed the best implement for instruction, and as the staff learned, so greater care was bestowed, the patients benefited and the stories of kindness, thoroughness, greater study and exquisite care to our sick grew apace. From the beginning, it was clearly understood by everyone, from the house officer upward, that his or her duties were not only the care of the sick but also the extension of knowledge. This inclusion of the spirit of research as a part of the original program cannot be overestimated in appraising the subsequent happenings. The successful careers of our graduates are a reflection of this spirit and this attitude.

With the senior staff in the hospital all day, many advantages were at once apparent. Let us look at the patient, who must always be our chief concern. He is constantly surrounded by a group of interested people. The house officers must have complete records of the history and physical findings and those promptly, for a senior staff member may appear at any moment. If something happens unexpectedly to the patient while being observed, a senior surgeon can be called to the bedside at a minute's notice, and the most appropriate service rendered. And in an attempt to improve upon the methods of treatment, problems which arise at the bedside are tested in the Laboratory of Surgical Research in the Harvard Medical School. This constant desire to improve the care of the patient and to study him more thoroughly has been the chief stimulus to the many changes in surgical practice begun in this hospital. It has led us to improve the autoclaves, which are used to sterilize materials, by the addition of thermostatic time-clock controls that lock them until their contents have been submitted to the required temperature for the necessary period. The electric knife, now in common use throughout the world, had its first clinical application here, in the hands

of Dr. Cushing; finding that the glare of white linen diminished our visual clarity through shutting down the iris diaphragm of the eye, we adopted the use of colored linen to increase our ability to see the little things and thus safeguard the patient. Furthermore, in an attempt to better the care of the patient, the amount of study given to patients in our Out-Door Department has been vastly improved and increased, and that we may be sure that we are doing good for people or learn where our mistakes occur, all hospital patients who have been operated on are now brought back to a follow-up clinic in the Out-Door Department some months after the surgical procedure in order to assay its value. Special groups are here studied by people who are interested in certain divisions of the body, but always we have attempted to keep the surgical clinic a general surgical clinic. As men interested in a special field have arisen, they have been encouraged in their work that we might further push out the frontiers of surgical practice. Thus, specialization in the hospital is a matter for the individual, not dictated by a field for work. This system has many advantages and is particularly valuable in the training of the young surgeon. In hospitals where gynecology, otolaryngology, ophthalmology, urology, neurological surgery, thoracic surgery and so forth are set aside as specialties, there remains to train the general surgeon, who in most communities must perforce carry on the major amount of surgical treatment, but a handful of conditions. This is an unfortunate limitation, because work in each field brings something to the surgeon that betters his work in other fields, and all surgeons should begin their careers with a broad general training. Moreover, narrow specialization in a hospital greatly limits the value of the student's experience, since in entering a special ward he already suspects that each patient in that ward has a disease of the kidney, the eye, the brain or the lung, and is thus robbed of a larger experience in diagnosis.

If we now leave the patient and ask what the accomplishments of this hospital have been as regards the extension of surgical knowledge in general, we can paint an equally broad picture. There is first the establishment of the whole field of neurological surgery on a sound footing by my predecessor, Dr. Harvey Cushing. His work speaks for itself. His published volumes and the list of his pupils now holding leading positions, not only in his special field but in the major field of general surgery as well, need no comment before a Boston audience. His great energies, his artistic disposition and his driving and restless spirit carried him into many fields and have left behind great accomplishments, in literature as well as in medicine. The two hospital units he headed in France, his *Life of Sir William Osler,* his research in intracranial and endocrine-gland physiology are but isolated fragments of a stream of great endeavor. Pupils will ever follow such a master! Other fields of surgical work have here been expanded and developed. Dr. David Cheever has studied and helped to systematize the treatment of surgical diseases of the alimentary tract and biliary system and in his surgical teaching has built more securely into the foundations the indispensable cornerstone of anatomy. A single contribution of great moment was the publication by Dr. John Homans of his *Textbook of Surgery.* Written in his own inimitable style and colored by his delightful historical perspective, we look upon it as the most useful undergraduate textbook of surgery in the English-speaking world, and rightly so, for he has condensed into a single small volume the essentials which the young surgeon should know. Dr. William Quinby has been in the vanguard of the pioneers in the rapidly growing field of urological surgery. Dr. Emil Goetsch, while acting as our first resident surgeon, made notable contributions to the understanding of thyroid-gland dysfunction. In this institution also was carried out by the surgeon-in-chief the first purposeful surgical attack upon chronic valvular disease of the heart, up to then an uncharted sea for the surgeon.

These, then, are some of our accomplishments. The graduates who are here will doubtless wonder about the future. Can this pace be maintained? Is the hospital living up to its traditions, and what is the present trend? We agree to the desirability of keeping the hospital from getting too large, in maintaining it as a single general service, so that we may give proper experience to young men who wish broad surgical training, at the same time that we permit and stimulate people to push ahead in special fields. But we must have the tools to do this. In the past twenty-five years, advances have been made in apparatus for doing things which our present financial situation does not permit us to acquire. We need better nursing care for our patients, not in the sense that our nurses are in any way inefficient, for I believe them to be as effectively taught and as sincerely interested as any nurses in the world, but because the developments of the last twenty-five years have cast upon the shoulders of the nurses ever-increasing labors, and we greatly overwork them. There must be more instructors for the pupil nurses and modern facilities to help them in their labors. We need a complete renovation of the quarters of the pathologist and new and more capacious laboratory space

for the physicians. We need improvements in the record room, a great deal of apparatus for our x-ray department, and an entire renovation of the antiquated and overcrowded surgical pavilion. Finally, we need a setup for professional anesthesia, rooms for the anesthetists and proper apparatus for them. Undesirable comment has been made that in Boston, where anesthesia first began, very little progress has been made in almost one hundred years. Consider for a moment the opportunity! Within a radius of four hundred yards from where we sit, individuals could be trained in anesthesia for babies and children, for women in confinement and for all forms of adult disorders. Nowhere in America is there an equal opportunity for such a diversified experience. It is more than a hospital problem and something to which Harvard Medical School should give much thought.

And now, before I leave you, let us think of Peter Bent Brigham himself. Dr. Dale Friend, a member of our staff, has carried out a considerable study of our founder's health. The records show clearly that he died the victim of pernicious anemia. How he must rejoice that in this hospital, which he founded, Drs. Minot and Murphy first demonstrated the alleviation of this disease by liver feeding! Here he can visualize in a specific and personal fashion the wisdom and usefulness of his charitable design. For now no one else need suffer as he had to! Further, we can hope that Mr. Brigham will judge us according to the product of this hospital, both as regards those who have been trained here and those who have been sick here. You alumni and alumnae represent one phase of this work — your good deeds and your high positions must bring great satisfaction to Mr. Brigham. We consider that you represent the major benefits which this hospital has produced. Our patients, past and present, will, we feel certain, testify to our founder in our behalf. A leader for such a cause as this hospital represents need never feel disheartened. We can face the future with the certain conviction that the good which this young institution has accomplished is but a promise of the future. And to this future we now dedicate ourselves.

MR. AMORY: The hospital is proud of what it has been able to do in the first quarter century. It looks forward to the brighter opportunities which the next twenty-five years will bring, and believes that with adequate endowment and by holding fast to its high traditions, it can continue and increase its prestige and service in meeting human needs. To forecast what the future may be, I am happy to present to you the Dean of the Faculty of Medicine of Harvard University, who is also physician to the hospital: Dr. C. Sidney Burwell.

DR. BURWELL: Before I look into my crystal ball and try to see the outlines of the future of the Peter Bent Brigham Hospital, may I say a word in my capacity as the representative of the Harvard Medical School? On behalf of the Faculty of Medicine, I bring to the Peter Bent Brigham Hospital warm greetings and hearty congratulations on twenty-five years of distinguished service to the community. On the basis of the quality exhibited by the hospital in these twenty-five years, we have reason to hope that its future also will be bright.

I shall begin my discussion of the future with a text. In *Through the Looking Glass* you will remember that Alice and the Red Queen did some rapid and arduous running. At the end of their efforts, Alice was astonished to find that they were still under the very tree by which they had stood before they began to run. She observed to the Red Queen that where she came from such running would have had better results than simply to keep them in the same place. "A slow sort of country," replied the Red Queen. "Now, here, you see, it takes all the running *you* can do to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that."

This principle of having to progress even to stay in the same place is true of hospitals. They can go down as well as up, and if they fail to go forward to meet new needs and new standards, they are bound to go backward. The future, in other words, is not guaranteed; perhaps this is one of the reasons why it is interesting. It would be a brave and foolish man who tried to foretell specifically events of the future. We may think we see the direction of movement of an institution such as the Peter Bent Brigham Hospital, but we cannot point on the map to its destination because we sail a sea which is not charted. Columbus, if I remember correctly, thought he might be sailing to the Indies or the realms of the Great Khan. He bumped into America. Even infrared rays will not permit us to see all that lies ahead of hospitals in our American and changing society. But while we cannot penetrate the future, we can consider our readiness for it, and we can try to place it in good hands. Thus prepared, we can look forward to it with hope and perhaps with confidence.

Some years ago, while visiting at St. Bartholomew's Hospital in London, I attended an informal class for medical students. It happened to be given by a distinguished teacher who fifteen years later was the physician-in-chief pro tem at the Peter Bent Brigham Hospital. There was a portable blackboard in this room to which the teacher turned to write. As he was writing on it and punctuating the sentences with vigorous stabs, the

blackboard suddenly and violently collapsed and fell into a dozen pieces. The lecturer was neither confused nor disturbed. He turned to the class and said, "Gentlemen, St. Bartholomew's Hospital was founded by Rahere, the King's jester, in 1123. We are still using a good deal of the original apparatus." Perhaps this may serve to introduce two points: there are obviously times when a new blackboard is necessary and when to cling to the old one is to lose ground in the procession; and there are some pieces of equipment that need to be cared for and preserved at all costs and against all comers. One may believe the essential basic equipment of any hospital to be a set of traditions. I do not refer to specific traditions, like standing up on grand rounds or giving sodium bicarbonate with salicylates. These are merely ornamental traditions. They give one an agreeable sense of belonging to a place with some continuity of history, but they have no necessary virtue in themselves. Important traditions are general ones. I propose now to mention four general traditions which I consider should be maintained in the Brigham if its future is to be as bright as we wish it to be. They have, I believe, been actively maintained in the twenty-five years we are gathered here to celebrate.

First, the tradition of high standards in the care of patients. The position of the Brigham in the community in regard to both the care of patients and the education of various groups (doctors, nurses, medical students, social workers and patients) will depend on the maintenance of high standards. The teaching of medicine, in my opinion, is much more a matter of the setting of an example of quality of work than it is of imparting specific knowledge. These standards concern not only technical proficiency, but also the attitude toward patients as individuals and the acceptance of the hospital's responsibilities relating to the public health of the community.

Secondly, the tradition of changing with the times; that is, of keeping up with the constant stream of new knowledge. It is probably necessary to develop a sense of chronic, progressive, nonmalignant self-dissatisfaction which will tend to prevent stagnation. President Conant has recently written that it has been the role of prophets not only to foretell the future but to urge the desirability of the inevitable. One does not know the precise position that hospitals will come to occupy in the community in twenty or in fifty years. They are already an important part of the social structure in Boston, playing a role in the care of the sick, the education of many groups of people and the advancement of knowledge. These functions may change. They are more likely to increase than to grow less. As knowledge of medicine advances, it is to be expected that more and more of the hospital's activities will be devoted to the prevention of disease instead of its cure. We are impressed in these days of advancing knowledge with the importance of adverse social conditions in the causation of disease. As we learn more about these factors, it is to be expected that the hospital, which deals with disease, will come to have a larger relation to the social problems of the community.

The third tradition to be maintained is that of enthusiasm for the pursuit of knowledge. There are many important divisions of medical science. One of them deals with the phenomena of disease in patients. Research in this essential field must be pursued in hospitals and other forms of practice. Great discoveries made in the Peter Bent Brigham Hospital have influenced the lives and hopes of men. Discoveries are apt to be made in hospitals when the spirit there is one of enthusiasm for the study of patients and for learning about disease.

The fourth tradition, in the light of which the hospital was built and in the light of which it has maintained its fine career until now, is that of close and harmonious relation to the Harvard Medical School. Such a relation is useful for both hospital and school. It is a large advantage to the school to have a great general hospital at its door. Equally it is a large advantage to the hospital to have the resources of a great medical school at its door. My own belief is that the co-operation between the school and the hospital should be closer and more extensive than it is; that there should be a more active interchange of men between the hospital and, for example, the preclinical departments of the school. I believe that the school and the hospital are mutually interdependent: that each profits from the other and that together they can go much farther and faster than either could go alone.

Because I believe in the importance of close and active relations between hospital and school, I should like to quote the words of President Eliot at the dedication of the Harvard Medical School buildings in 1906. They seem to me to summarize better than any I know the purposes of the great group of buildings that have grown up around us:

> I devote these buildings, and their successors in coming time, to the teaching of the medical and surgical arts which combat disease and death, alleviate injuries, and defend and assure private and public health; and to the pursuit of the biological and medical sciences, on which depends all progress in the medical and surgical arts and in preventive medicine.

These four traditions — of setting high standards, of changing with the times, of enthusiasm for knowledge, and of intimate and mutual co-opera-

tion with the Harvard Medical School — are four pieces of original equipment which I hope will be kept polished, oiled and running as long as the hospital stands. If they can be, the Peter Bent Brigham Hospital will have a future worthy of her past and as bright as our hopes for her. There could be no better wish than that.

MR. AMORY: I know you will now be glad to hear a few words from Mr. Charles F. Adams, president of the Community Federation of Boston, on which we are dependent.

MR. ADAMS: What can I say to you on behalf of the Community Federation? For we are only your agents in helping you to the happiness of giving. We are glad to see the many people here learning what this hospital and this occasion can do for this community we live in. It is good that you should get that knowledge and that feeling, because it will make deeper in your hearts the satisfaction of giving, knowing that what you give is going to a great cause and to great men furthering that cause. And what can I say to these men? Only this: that so far as our hearts go, so far as our feelings go, we shall always, as we have in the past, feel the joy of giving, the joy of helping, the joy of supporting what they are giving and supporting themselves.

MR. AMORY: The Chancellor of the Archdiocese has come to our ceremony to bring the blessings of His Eminence, the Cardinal, and to speak the benediction upon our anniversary celebration: Monsignor Phelan.

MONSIGNOR PHELAN: In the name of the Father, and of the Son, and of the Holy Ghost, Amen. Oh, Almighty and Merciful God, unfailing source of healing and of strength, we come to Thee, our Divine Physician, to implore thy blessing now and always upon this institution and upon each of us thy children. We have met today to celebrate the passing of a quarter of a century of service not only to city and state but to the whole world by this institution, twenty-five years dedicated to the cause of humanity in the exercise of the ministry of the medical and surgical sciences. We pray Thee, Oh, Heavenly Father, to continue to bless our community with the many manifestations of thy divine power to heal and to restore health; to give skill to the physicians and nurses who labor here. We ask Thee, Oh, Almighty God, to bless us all, in sickness and in health; to bring us to understand that thy whole purpose is our good, both in suffering and in surcease of pain, and that when illness, which is the reminder of our frailty and mortality, does come to us, we shall know that Thou, Almighty God, will be giving in mercy and love for our temporal and eternal well-being. Grant, Oh, Almighty Father, that the next quarter of a century in the history of this noble institution may be as golden with achievement and as rich in accomplishments for humanity and for the advancement of medicine and surgery as the first quarter of a century has been. Bless us, Oh, God, with these great gifts, not for any selfish reasons but rather that this institution of healing may be a daily benediction unto all mankind. This we ask humbly and devoutly through Jesus Christ, our Lord. Amen.

DIET IN THE PREVENTION OF DIABETES MELLITUS

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IN recent years more and more attention has been paid to the problem of the prevention of diabetes mellitus. Because its etiology is complex and uncertain, the application to this disease of the principles of preventive medicine is particularly difficult. Despite this, the problem of prophylaxis has begun to assume increasing importance, owing to the steadily rising incidence of diabetes.

In the field of prevention, sufficient emphasis has not been directed to the question of dietetic management of the individual predisposed to diabetes by heredity. It is our feeling that this point is of particular interest to the practicing physician, and furthermore that it is precisely this aspect of the subject that requires revision in the light of recent advances in our knowledge.

From the standpoint of public health, prophylaxis takes on added significance when it is considered that "diabetes has advanced as a cause of death in the United States from twenty-seventh place in 1900 to tenth place in 1933. In 1930, Dublin expressed the opinion that within ten years diabetes would equal tuberculosis as a cause of death, and thus far his prediction is coming true."[1] Other public-health statistics likewise demonstrate the increasing frequency of diabetes not only for the United States but for the countries of western Europe as well.

The arteriosclerotic complications of diabetes are today the chief cause of death in this disease. For this reason it is evident that the prevention of diabetes would, in a real sense, be simultaneously a preventive measure against the even more prevalent degenerative cardiovascular diseases.

ETIOLOGY

The rational application of preventive measures necessitates consideration of the etiology of diabetes. In the light of present knowledge, diabetes is in large part a disease based upon an hereditary metabolic impairment which is transmitted as a recessive Mendelian characteristic. According to this concept the diabetic is born with a latent insufficiency of his regulatory mechanism of carbohydrate metabolism. This reduced functional capacity gives way under the impact of certain environmental influences, and the inherited constitutional defect becomes a manifest disease.[2] Of chief importance among such environmental factors are diet and obesity, lack of muscular activity, endocrine imbalance and disorder, infection and emotional disturbance.

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MINOR ENVIRONMENTAL FACTORS

Certain of these environmental factors are of minor importance in the consideration of a practical program for the prevention of diabetes. For example, although it is known that acute infections produce a transient depression in glucose tolerance, it is still more than questionable whether this condition ever leads to true diabetes. There is even less evidence that chronic focal infection bears any relation to its development. It is worthy of note that the increasing frequency of diabetes has coincided with the increasing surgical attention which has been paid in recent years to chronic foci of infection. For the prevention of diabetes, then, "there are no indications for the wholesale eradication of infected tonsils and teeth."[3] There appears to be somewhat greater evidence for the existence of a relation between gall-bladder disease and diabetes. However, it is problematical whether removal of a diseased gall bladder is of any preventive value.

Similarly, the importance of acute emotional disturbance as a causative factor has been unduly exaggerated. Even such experienced observers as Von Noorden[4] and Joslin[5] cite only rare instances of this kind, and are themselves skeptical as to a causative relation. Just as in angina pectoris and hypertension, some authors attribute the increasing incidence of diabetes to the excessive tension of modern life. More recent studies[6] which reveal the extraordinary prevalence of severe hypertension and the equivalent occurrence of diabetes in the supposedly easygoing Negro serve to cast doubt upon such assumptions. From the practical point of view these factors are of lesser importance, and furthermore are so completely beyond the control of the individual that the physician can scarcely be expected to make any specific recommendations concerning them.

It has long been known that endocrine disorders, particularly hyperthyroidism and acromegaly, can produce an impairment of carbohydrate tolerance, even of quite severe degree. It is still a matter of dispute whether such conditions are actually examples of true diabetes. The proper treatment of these disorders is all that can be

done at present to prevent a complicating diabetes. For example, when hyperthyroidism appears in an individual with an hereditary background of diabetes early surgical intervention should perhaps be all the more strongly urged. In such a case prophylactic considerations add weight to the therapeutic indication.

Physiologic endocrine imbalance such as occurs at the climacteric, in pregnancy and at puberty may likewise disturb the regulation of carbohydrate metabolism so as to produce diabetes. Whether during these periods of endocrine adjustment anything can be done for the prevention of diabetes is a matter of speculation. It is conceivable that the proper management of the critical transition period of the menopause by means of adequate substitution therapy may some day serve as a preventive measure.

The factors of lack of muscular activity and of obesity appear to act synergistically, so that, for instance, a sedentary existence seems to predispose to the development of diabetes. Statistics which contrast the incidence of diabetes among city and country workers and among various occupational groups serve to support this thesis. The physician certainly ought to urge the benefits of muscular exercise and activity upon all members of a diabetic family. Occasionally it may even be necessary to advise parents of children with a diabetic heredity as to the choice of a suitable vocation.

MAJOR FACTORS

Heredity

Of major significance for the problem of prevention in diabetes are the hereditary background of the disease and the questions of obesity and nutrition.

From the point of view of public health the prevention of diabetes consists in an effort to prevent the inheritance of the fundamental metabolic defect. In accordance with the laws which govern the transmission of recessive Mendelian traits it has been stated[7] that:

1. If two diabetics marry, all the children may eventually develop the disease.
2. If a diabetic marries a diabetic carrier (that is, a nondiabetic individual with a diabetic heredity), one half of the children may be diabetic.
3. If two diabetic carriers marry, one fourth of the children may become diabetic.
4. If a diabetic marries a true nondiabetic, none of the children need be diabetic but all will carry the diabetic trait.

From the standpoint of prevention it follows, as Wilder[2] has emphasized, that a diabetic should not marry another diabetic and that he should avoid marriage with an individual of diabetic heredity. Unfortunately the practical value of this knowledge is limited because of the usual onset of diabetes relatively late in life after the customary marriage age. Thus, according to Joslin's[8] figures covering more than 5000 cases seen over a period of thirty-five years, less than 20 per cent had their onset before the age of thirty. Indeed, other authors[9] find that only 7 to 8 per cent of their cases began in the first three decades of life.

For the most part, then, in order to apply these facts of heredity satisfactorily it is necessary to know more precisely what constitutes potential diabetes. For this and other reasons the state of "pre-diabetes" has attracted considerable attention. At first an abnormal glucose-tolerance curve was accepted as a satisfactory criterion for the diagnosis of potential diabetes.[10] With considerable enthusiasm the relatives of diabetics and the obese were subjected to this test.[11] A new field in preventive medicine seemed on the verge of discovery. Observations over a period of years have shown, however, that potential diabetics rarely follow prediction. Pre-diabetes does not necessarily lead to diabetes.[12] Unfortunately no definitive statement can be made on this point, because no thorough study is at present available of a large group of alleged pre-diabetics with adequate follow-up over many years. Yet Marble[13] goes so far as to say that "it would appear as if a diagnosis of potential diabetes predisposed that individual to health and that he was a good risk for an insurance company."

The problem of prevention of diabetes through the control of heredity looms still larger as it is realized that in all probability "approximately one citizen in four in the United States is an hereditary diabetic carrier."[14] For this reason governmental legislation, which has been urged in some quarters with the aim of controlling diabetes through eugenics,[15] has not so far been given serious consideration.

Obesity and Nutrition

From the point of view of the individual, the relatives of the diabetic patient are especially anxious to avoid the transformation of a latent defect into a manifest disease.

It is generally acknowledged that obesity is the chief environmental factor which precipitates diabetes. Statistical analyses of diabetic morbidity and mortality are conclusive in demonstrating the high correlation of obesity and diabetes. The exact nature of the underlying mechanism is obscure; both conditions may arise from a single basic factor. However, as a result of experimental and clinical observation,[16] it is known that obesity con-

tributes to the development of diabetes and aggravates it when already present. It is likewise acknowledged[17] that a reduction to normal weight improves carbohydrate metabolism.

For this reason the single most valuable measure for the prevention of diabetes in the predisposed is the avoidance of obesity. The maintenance of a normal or even somewhat subnormal weight, particularly after the age of forty, has been repeatedly and correctly urged. For women the importance of weight reduction after pregnancy and before the menopause must be especially emphasized.

It has been our experience that members of a diabetic family are particularly interested in the value of special dietary restriction for the prevention of diabetes, and frequently seek the advice of the physician on this point. It still appears to be a tacitly accepted practice for the physician to advise a low-carbohydrate, relatively high-fat diet. This usually entails the omission of sugar and the avoidance of sweets and potatoes, as well as a reduction in the consumption of bread. There follows almost inevitably an increase in the use of butter, cream and other fats to compensate for the diminution in caloric intake.

Such advice has its origin in the traditional dietetic management of manifest diabetes by this type of regimen. It is based upon the theory that a low-carbohydrate diet spares the deficient pancreas of the potential diabetic as well as of the manifest diabetic. But recent advances in our knowledge of the treatment of diabetes by diet, as well as of the effect of diet upon normal carbohydrate metabolism, have demonstrated unequivocally that a low-carbohydrate, high-fat diet may impair rather than improve sugar tolerance.

The early clinical experiments of Adlersberg and Porges,[18] followed by those of Sweeney,[19] Malmros,[20] Frank and Leiser[21] and most recently of Himsworth,[22] all support the contention that a reduction in carbohydrate and an increase in fat not only reduce glucose tolerance but may even produce transient diabetes. Himsworth elaborates this thesis further to state that "the sole dietetic factor influencing the blood-sugar-tolerance curve is the absolute amount of carbohydrate in the diet. Neither the caloric value nor the protein content nor the fat content of the diet exerts any influence." Whether or not this extreme point of view is justified on the basis of present knowledge, there can be no doubt today that restriction of carbohydrate may impair glucose tolerance.

As an illustration of this we may cite the observations of Tolstoi[23] and of McClellan and Du Bois[24] upon two men who lived on meat only for an entire year. The carbohydrate value of this diet was approximately 10 gm. daily, apart from that ultimately derived from protein. At the end of this period both subjects were found to have abnormal glucose-tolerance curves, and one of them had a glycosuria of several days' duration in response to this test.

We have had occasion to observe certain cases of transient nondiabetic glycosuria which, by irrational and superfluous carbohydrate restriction, were inadvertently transformed into cases of mild diabetes. A complete restoration of carbohydrate metabolism to normal followed a return to a regular full diet. The following case is illustrative.

E.G.B., a 48-year-old white manufacturer, was discovered at an insurance examination to have glycosuria. He had had none of the symptoms of diabetes, and in recent years several urine examinations had been negative for sugar. An elder brother had had diabetes for 10 years, and for this reason, plus the presence of the transient glycosuria, the patient was advised to adhere to a low-carbohydrate, high-fat diet, which he followed rather strictly. After 2 months of this regime a fasting blood sugar was found to be 170 mg. per cent.

When the patient first came under our observation a glycosuria of but 0.3 per cent was found, and a fasting blood sugar of 158 mg. per cent. Because of a suspicion that the case might not be one of true diabetes, the patient was permitted to take an unrestricted diet. From this time on, he was sugar-free.

Four weeks later the blood sugar was 104 mg. per cent, and another test after 6 weeks showed 116 mg. At present, 6 months later, the patient's urine is sugar-free, although there has been no dietary restriction of any kind.

As a further illustration of this point, we may mention that we have observed a few cases of renal glycosuria upon which a mild diabetes had been superimposed by the unnecessary and even harmful practice of prescribing a severe restriction of carbohydrate intake. An unrestricted diet has restored carbohydrate metabolism to normal, and only renal glycosuria has remained. Similar observations have been made by Lawrence and McCance.[25]

We have found but one other instance in the literature of artificial diabetes induced by irrational dietotherapy. Himsworth[26] discusses the case of a young man who was discovered to have glycosuria during a period of stress. He was advised to take a diet containing 80 gm. of carbohydrate, but despite this, postprandial glycosuria continued. After a month of this diet the blood-sugar values following the ingestion of 150 gm. of glucose were as follows: fasting, 108 mg. per cent; after one-half hour, 182; after one hour, 268; after one and one-half hours, 230; and after two hours, 160. This was considered to be a mild case of diabetes. He continued on the same diet for four years, and postprandial glycosuria persisted. Because of certain

suspicions as to the genuineness of his diabetes, he was persuaded to take a high-carbohydrate diet, with the result that his glycosuria disappeared and the blood-sugar values following a glucose-tolerance test were: fasting, 96 mg. per cent; after one-half hour, 154; after one hour, 168; after one and one-half hours, 142; and after two hours, 110. The conclusion was that the patient had never had diabetes mellitus and that the impaired carbohydrate tolerance was an artefact produced by restriction of carbohydrate.

In the present status of our knowledge it is apparent that the current practice of advising a severe restriction of carbohydrate to those predisposed to diabetes is without justification and, in our opinion, may actually prove harmful. The harm which may be done these individuals by excessive dietary regulation is not only somatic, as we have already demonstrated, but also psychologic. We have observed that not infrequently relatives of diabetics develop anxiety states, with diabetophobia, which are the direct result of unnecessary dietetic limitations advised by the physician.

What advice as to diet should the physician give the individual predisposed to diabetes? First, the caloric intake must be such that overnutrition will be avoided. Secondly, the quantitative distribution of carbohydrate, fat and protein should be that of an average normal diet. Although it must be admitted that the exact minimum of carbohydrate advisable is not yet established, and for this reason no dogmatic statement can be made, we are of the opinion that the daily carbohydrate intake should be not less than 200 gm. and preferably more.

SUMMARY

The etiologic factors underlying diabetes mellitus are discussed from the standpoint of prevention. Whereas the hereditary background and numerous environmental factors are only partially preventable, it is emphasized that diet is the only completely controllable factor. Evidence is presented to show that the current practice of advising a low-carbohydrate diet to the individual predisposed to diabetes is irrational. Avoidance of overnutrition and a normal diet are recommended.

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PROGRESS IN NEUROSURGERY IN 1937

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THE purpose of this paper is not to present a comprehensive review of neurosurgery, but to mention some of the features of the past year of progress which will be of interest to those in other fields of medicine. No branch of medicine stands alone, and progress in one field often presents opportunities for progress in others, but since no one can possibly keep abreast of the whole medical front, there is an increasing need for reviews.

MENINGITIS

A feature of American medicine in 1937 was the introduction of an azo dye containing a sulfonamide group for treating streptococcal, meningococcal and gonococcal infections. This dye is para-aminobenzenesulfonamide, more conveniently called sulfanilamide, and also known under the trade name of Prontylin. Because of its value in the treatment of certain meningitides, sulfanilamide has come to occupy an important place in neurosurgery.

In April, 1937, Schwentker[1] and his collaborators reported 4 cases of beta hemolytic streptococcal meningitis treated with sulfanilamide or its derivatives, in 3 of which the patient recovered. In the same month, in a paper read before the American College of Physicians, Long and Bliss[2] reported 28 cases of streptococcal meningitis treated with sulfanilamide; 24 (85 per cent) of the patients recovered. This contrasts sharply with the previous mortality rate, which has been believed to be at least 90 per cent, and there can be no question but that this new drug is responsible for the change. The successful treatment of other cases of streptococcal meningitis has been reported.[3]

Other types of meningitis also have been treated successfully with sulfanilamide. Schwentker, Gelman and Long[4] in a preliminary report based on 10 cases of meningococcal meningitis believed their mortality rate was considerably better than that of a comparable group of patients who did not receive the drug. Schwentker[5] later mentioned treating 52 patients who he thought did as well as those who received antiserum.

The appalling mortality rate of pneumococcal meningitis also seems about to be reduced with the aid of Prontylin. Reports of isolated cases with recovery[6] are accumulating, and to this number we can add 4 patients with the disease (Types III, VII, XVII and XXVIII respectively) who recovered.

Those who have had the most experience with sulfanilamide and its derivatives have voiced urgent warnings against its indiscriminate and careless use, for it is known to have toxic effects,[2] and its limits of safety have not been determined. Fortunately, most of the toxic effects encountered have been mild ones such as dizziness, anorexia, nausea, sensations similar to mild intoxication with ethyl alcohol, mild fever and a morbilliform rash. Uncommon but more serious toxic effects are acute hemolytic anemia which may be accompanied by jaundice, granulocytopenia and a fall in the carbon-dioxide combining power of the blood. Sulfhemoglobinemia has been reported,[7] but there is still some doubt[8] as to its existence. It has been shown that the hemolytic anemia is due to the peripheral destruction of red blood cells, while the granulocytopenia is doubtless associated with the benzene ring in the drug. Although the exact mode of action of sulfanilamide has not been determined, investigation indicates that it acts by bacteriostasis and does not stimulate the production or local accumulation of phagocytes, or increase their phagocytic power.[9, 10]

Because of the possible toxic effects of the drug, it should be administered carefully, and untoward effects guarded against by frequent blood studies. Experiments in vitro and in vivo have shown that the most effective concentration of sulfanilamide is 1:10,000, and in human therapy the attempt is made to approach this concentration (10 mg. per cent) in the blood.[11]* The concentration in the blood can be determined by a fairly simple colorimetric method described by Marshall, Emerson and Cutting.[12] To attain the desired concentration quickly in a new case it is well to give a large amount of the drug on the first day. Thereafter the concentration can be maintained by giving approximately 0.1 gm. per kilogram in adults and 0.15 gm. per kilogram in children. It is our practice to give adults 8 gm. the first day and 4 to 6 gm. on subsequent days. Prontylin tablets given by mouth produce as great a concentration in the blood as can be obtained by Prontosil, a prepared solution having a slightly different chemical formula, but which may be given subcutaneously.

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*More recently, stronger blood concentrations have been advocated, sometimes reaching 20 mg. per cent.

Furthermore there is some evidence that Prontylin is the more effective[11] of the two. Even though Prontylin when given by mouth is easily absorbed and soon becomes widely distributed throughout the body, including the cerebrospinal fluid, in almost equal concentrations.[13] Long and Bliss[2] advocate giving it intraspinally as well as by mouth in streptococcal meningitis. They prepare a solution of sulfanilamide by dissolving 0.8 gm. of the crystalline drug in 100 cc. of saline or other suitable solution which has been brought to the boiling point, after which the drug is added and the solution allowed to cool to body temperature. It may be given in the same manner as is antimeningococcus serum. Prontosil has been used intraspinally, but Long and Bliss advise against such a procedure as it is apt to irritate the meninges, while a solution of sulfanilamide has not been found to do so. We have not found it necessary to use the drug intraspinally in treating meningitis.

Prontylin given by mouth reaches its maximum concentration in the blood in about four hours; hence the twenty-four hour dosage should be divided so that equal parts are given at four-hour intervals. Since the drug causes a marked loss of sodium and potassium in the urine, and so is likely to produce acidosis, 10 to 15 gr. of sodium bicarbonate should be given with each dose to compensate for the loss of base.

When a favorable clinical result has been obtained the dosage should gradually be reduced, the physician being on the alert for a recurrence of the infection. When there is an associated bone infection such recurrences are more likely.

The sulfanilamide ingested is largely eliminated in the urine; hence water is a good antidote for toxic symptoms. Major changes in the blood picture are effectively combated by stopping the drug and giving one or more transfusions. Mild anemias are treated by transfusion, with continuance of the drug. Because its elimination is dependent upon renal excretion, one must avoid overdosage in patients with diminished renal function, as the sulfanilamide tends to accumulate in the body and may reach dangerous levels.

BRAIN WAVES AND THE ELECTROENCEPHALOGRAM

Next to the introduction of Prontylin, the most outstanding contribution to neurosurgery during 1937 was the development of electroencephalography. In principle it resembles electrocardiography, since each method leads off and measures action potentials, the former from the cerebral cortex and the latter from the heart. The method as now developed is beginning to show definite and highly valuable applications in neurosurgery.

Berger (in 1929) was the first to report that it was possible to lead off from the human skull measurable electrical potentials of cerebral origin. The practical application of his discovery was retarded by skepticism and by failure to regard it as anything but an interesting phenomenon, and despite his excellent studies it was not until 1935 that the method became generally accepted. At this time Adrian predicted that electroencephalography might be of great use to the clinician. Since that time long strides have been taken, and the method is now being commonly used in neurosurgical diagnosis.

In brief, the procedure consists of attaching a series of electrodes to the scalp and making simultaneous graphic records of the variations in potential between different pairs of electrodes. It can be shown in this way that the normal adult cortex gives off oscillations of low voltage with a frequency of about ten per second. In the presence of a cerebral lesion, however, especially if it involves the cortex, marked variations in the waves occur. Irregular slow waves of a higher voltage appear. If the lesion is diffuse these waves may be found over the whole cortex, but if it is localized they arise only from its immediate neighborhood, and by shifting the electrodes about on the skull it is possible to determine its limits with a surprising degree of accuracy.

These waves, it should be noted, arise only from cortical activity. A lesion below the surface does not manifest itself unless it affects cortical function. A generalized increase of intracranial pressure, however, may also cause abnormal cortical waves, which can be eliminated by an intravenous injection of hypertonic glucose solution. Cerebellar lesions are as yet unsuited to localization by this method, because the cerebellum is not accessible except through the heavy neck muscles.

Although this procedure is still new and far from completely developed, it is already proving its usefulness. In 1936 Gibbs, Lennox and Gibbs,[14] studying epileptics during and between seizures, showed that grand-mal and petit-mal seizures are each represented by a characteristic wave form, and that abnormal waves of either type may appear in definitely localized areas. Golla, Graham and Walter[15] reported a series of 107 cases of epilepsy in which they made electroencephalographic tracings; about half showed abnormal waves between seizures, and in many cases these were shown to emanate from a focus. Of more immediate value was Walter's[16] earlier report of 10 cases of suspected brain tumor in which the tumor was correctly localized by electroencephalography. Since then, his series of brain tumors has grown much larger and his localizations have been astonishingly accurate.

Recently Williams,[17] working in the Neurological Unit of the Boston City Hospital, reported a series of 80 cases in which electroencephalographic studies were made. In 30 of these there was no focal lesion. Of the remaining 50, 13 were neither confirmed clinically nor checked by operation or autopsy, so that the correctness of the localizations could not be established. Of 22 cases checked by operation or autopsy and 11 cases confirmed by x-ray and clinical examination, the localization was correct whenever there was a single lesion. In 1 case the main focus was localized but a secondary focus was missed. In 2 cases where the electroencephalogram demonstrated a focus on each side of the brain, only one focus was confirmed — one a head injury and the other a brain abscess associated with meningitis. Such good results from a new and still unperfected method are most encouraging.

From the neurosurgical viewpoint, the electroencephalogram has two main uses: to distinguish between diffuse and focal brain lesions in cases of epilepsy, and to localize focal lesions. Doubtless other uses will be found as more is learned about the electrical activity of the brain. But it should also be emphasized that this procedure cannot at one stroke replace the older diagnostic methods, and for the time being must be used in conjunction with them.

MIGRAINE

Readers of the *Journal* have already had an opportunity to become familiar with von Storch's[18] excellent summary of the present status of the migraine syndrome from the standpoint of diagnosis, etiology and treatment. The results obtained with ergotamine tartrate in the last five years are most encouraging. But this drug is only a means of relieving the major symptom of each recurring attack; it offers no permanent cure and does not correct the cause. Because of the necessity of repeating the ergotamine treatment for each successive attack, it is hoped that some more permanent means of relief will be found. A clue to such may lie in the vascular theory of the migraine mechanism.

Von Storch points out that headache is a symptom encountered in all types of migraine, regardless of their etiology, and that in 9 out of 10 cases it can be relieved by ergotamine. Therefore, he reasons, there is probably a headache-producing mechanism which is common to all types. It is known that histamine produces headache through dilatation of the dural or scalp arteries, which in turn stimulates the periarterial nerve plexuses. Conceivably, a similar dilatation produced by one of several etiologic factors may be responsible for the headache in migraine and it could be relieved by vasoconstriction of the arteries of the dura and scalp. Such a selective vasoconstriction of the branches of the external carotid artery, which supplies the dura, is the unique physiologic property of ergotamine tartrate.

This brings us to the neurosurgical aspect of the subject. Can vasodilatation of the external carotid artery and its branches be permanently prevented and the attacks of headache be stopped by a surgical attack on these vessels? An attempt to answer this question has already been initiated. The first attack was made indirectly through the sympathetic nervous system. Dandy[19] had 2 patients with migraine who showed sweating, redness and vascular engorgement over half the face, with congestion of and a fluid discharge from the nasal mucosa during the attacks. They were relieved by removal of the inferior cervical and first thoracic sympathetic ganglia, although it is not apparent how such a procedure could relieve this type of pain. In 1933 Dickerson[20] made a direct attack upon the dural vessels and reported relief in 7 cases of migraine by division of the middle meningeal artery. Oldberg[21] in 1937 made a preliminary report on 5 other cases similarly treated. His patients also obtained relief. Von Storch and I have seen relief of pain in the temporal region when only the superficial temporal artery was divided at the zygoma.

Not enough cases have yet been studied to justify the general application of this method, but it merits consideration and trial where attacks of migraine are accompanied by vascular phenomena. Ligation of the middle meningeal artery is not a formidable procedure for the neurosurgeon, and the risk involved is exceedingly small. As more is learned about this aspect of the treatment of migraine, even ligation of the external carotid artery through a small incision in the neck may come into use.

LOW BACK PAIN

The outstanding work of Mixter and Barr in showing that rupture of the intervertebral disc with extrusion of the nucleus pulposus is a fairly common cause of back pain has become well known in the last few years. Another cause which is less well known but probably far commoner than now realized is hypertrophy of the ligamentum flavum with pressure on the spinal cord or cauda equina. This condition was first described by Elsberg[22] in 1913. Thereafter only 6 cases were noted until 1937, when Spurling[23] and his associates reported 7 more. This number suggests that the lesion is commoner than actual reports indicate, and

that it is often undiagnosed and may be present but unrecognized at operation.

The ligamentum flavum is a short, tough, yellowish ligament joining the laminae of adjacent vertebrae; it bridges the space through which a lumbar-puncture needle must pass to reach the spinal subarachnoid space. It is in contact with the dura, and its enlargement can reasonably be expected to cause pressure on the dorsum of the spinal cord or cauda equina, just as protrusion of the nucleus pulposus can cause pressure on their anterior aspects.

Spurling measured the ligamenta flava between the third and fourth lumbar vertebrae, between the fourth and fifth and between the fifth and the sacrum on 40 cadavers. The greatest thickness was 7 mm. and the least 2 mm., with an average of about 4 mm. The ligaments removed at operation ranged from 10 to 16 mm. in thickness. The epidural fat beneath each of these latter had disappeared and the ligament was adherent to the dura, sometimes so tightly that the dura was torn in the effort to separate the two.

In the cases reported by Spurling there was usually a history of trauma, such as heavy lifting, to which the patient attributed his symptoms. This was followed by a period of severe pain in the lower back, which gradually subsided, only to recur and persist. In none of the patients was the pain relieved by lying down; instead they were more comfortable when sitting or standing. Sudden changes of position, as well as coughing, sneezing and straining at stool, caused an exacerbation. Radiating pain into one or both lower extremities was present in each case and usually followed the sciatic distribution. Loss of sexual potency, subjective sensory loss in the lumbar and sacral segments and diminished motor power in the legs were common. Some postural deformity, tenderness over the lower spinous processes and diminished pain and temperature sensibility over the sacral skin segments were constantly observed. The postural deformity may have had a casual relation to the disease.

The diagnosis rested upon the neurological, lumbar-puncture and x-ray findings. The lumbar puncture showed no rise in pressure, and there was no demonstrable block, because in each case the enlargement occurred between the fourth and fifth lumbar vertebrae and the needle was inserted above that interspace. But there was an increase in spinal-fluid protein in every case but one in which the patient had had symptoms for only three months. The injection of iodized oil into the lumbar sac showed a characteristic filling defect opposite the fourth lumbar interspace in each case.

Treatment involves removal of the hypertrophied ligament, which projects into the spinal canal like a tumor and presses upon the cauda equina. Spurling and his co-workers regularly found the laminae of the fourth lumbar vertebra to be hypertrophied, and these also were removed. Except for 1 patient who died of meningitis, every patient recovered promptly from his symptoms following operation, but it is to be borne in mind that none of these cases had been followed for more than eight months, and the most recent one for only three months. Nevertheless, this syndrome seems well enough established to justify a diligent search for additional cases among sufferers from intractable low back pain.

CORD BLADDER

Munro[24] has again called attention to the high mortality from bladder infections in cases of cord injury. Although this infection cannot be prevented, it can be controlled and kept within minimal limits by the institution of tidal drainage, so that death from genitourinary infection can be practically abolished in cord injuries.

But to use the tidal drainage apparatus effectively requires an understanding of bladder physiology under various conditions of cord and nerve damage as well as precise information about the function of the bladder under treatment. The latter can be gained only from cystometry. For this purpose Munro describes his simple cystometer, which can easily be constructed from materials available in most hospitals.

Repeated cystometric examinations show that the cord bladder goes through various stages in its recovery. Immediately after cord injury the bladder is atonic. In this stage there are practically no limits to the amount of distention so that the musculature may be badly damaged by overstretching, and the bed will certainly be wet from dribbling unless some measure is adopted to keep the bladder properly drained. This phase is followed after a variable time by the "autonomous" stage, in which the intrinsic bladder nerves control the musculature and regulate its activity. The bladder shows a mild increase in tonus and exhibits more or less evenly spaced contractions, none of which are strong enough to produce adequate emptying despite the relaxation of the internal sphincter. This is the end stage of recovery if the sacral segments or cauda equina have been destroyed.

If the injury is somewhat higher, so that the sacral reflexes are functioning, recovery progresses and a "hypertonic" stage is reached. The bladder is then very irritable, and the accumulation of only a few cubic centimeters of urine will induce strong emptying contractions. This results in a contracted and thickened bladder whose functional capacity is

soon greatly reduced unless some means is found to stretch it between contractions. The fourth stage in recovery is the "uninhibited" one. All the nervous connections of the bladder remain intact except for the tract running to the cerebrum, over which inhibitory impulses arrive. The emptying of the bladder is governed largely by stretch impulses, and when the bladder content has increased to the point where it intensifies these impulses sufficiently, the bladder empties itself regardless of time and circumstance, because the inhibitory influences which can be brought to bear are so weak.

The last stage in recovery is a type of bladder activity which for all practical purposes may be considered normal, although by cystometric examination it may show some variations from that of the uninjured bladder.

With the knowledge of the characteristics of these various stages of recovery, it is possible by means of the cystometer to determine which phase the bladder is in. The tidal drainage apparatus may then be adjusted so that normal filling and emptying are imitated. When properly adjusted the apparatus provides for complete emptying of the bladder at intervals, eliminates residual urine, and also provides for mild stretching of the bladder wall so as to prevent the contraction and thickening that otherwise occur when constant drainage is maintained over a long period. With the elimination of residual urine, there is little chance for infection to become active. Furthermore, the bed is kept dry and the patient's skin is saved from maceration, infection and bed sores. This apparatus should find a wide range of usefulness, not only among patients with demonstrable genitourinary diseases, but also among those who because of mental cloudiness, disorientation or great debility are incontinent and are therefore especially liable to develop bed sores.

ALTERATIONS OF CEREBROSPINAL-FLUID PROTEIN IN BRAIN TUMORS

Although there is little doubt that most of the protein normally found in the cerebrospinal fluid enters by way of the choroid plexus, there is still considerable disagreement as to the cause of abnormal protein accumulation in diseases of the central nervous system. This is especially true in cases of brain tumor.

Deane[25] has contributed a study of 81 cases of brain tumor checked by autopsy, in which he has sought an explanation of the protein findings. He concludes from this work that variations in the protein content of the ventriculosubarachnoid fluid are related primarily to the interference or lack of interference to the blood flow through either the choroidal veins, the internal cerebral veins or the great vein of Galen, and not to the histologic character of the tumor[26] or its proximity to the ventricular wall,[27] as has been suggested. Such obstruction of the deep cerebral veins would cause an increased transudation of protein through their walls.

Deane first selected a group of criteria which would establish post mortem the presence or absence of obstruction of the deep cerebral veins during life. Obstruction of superficial cerebral veins was thought not to increase the protein content of the subarachnoid fluid, since these veins have numerous anastomoses which tend to prevent stasis and congestion when a part of the system is blocked. On the other hand the deep cerebral venous system has no significant anastomoses until the distal part of the great vein of Galen is reached. By means of his criteria of obstruction in the deep cerebral veins, he divided his 81 cases into those which showed definite evidence of obstruction, those which showed no such evidence and those in which the evidence was doubtful. Thirty-seven cases showed signs of pressure on the venous return by way of the choroidal veins, internal cerebral veins, vein of Galen and the straight sinus. Everyone of these cases showed an elevated cerebrospinal-fluid protein. (Deane's conclusions differ from his tabular findings in that in Table 1 there is 1 case of obstruction to venous effluence in which a normal protein was found, and in Table 3 there are 2 cases.) There were 32 cases without signs of interference with the venous return, and of these all but 1 had a normal protein. Ten cases fell into the group of doubtful interference; of these, 7 showed an elevated cerebrospinal-fluid protein and 3 a normal protein.

The cases were then regrouped according to the presence or absence of hemorrhage and degeneration in the tumor. Of the cases with gross hemorrhage and degeneration, 7 showed an increased protein and 7 a normal or low protein. Of those without degeneration, there were 35 with an increased protein and 26 without. These results show little correlation between hemorrhage and degeneration in the tumor and the amount of protein in the cerebrospinal fluid. It is interesting to note that 1 case showed a necrotic cavity communicating with the ventricle, but without any elevation in the protein.

When the cases were regrouped to show the relation between generalized increased intracranial pressure and protein changes, it was found that of 28 cases with a high pressure 13 had an increased protein and 15 had a normal or low protein. When the cases were classified histologically as well as with regard to evidence of venous obstruction, it was seen that those with glioblastomas, metastatic carcinomas and sarcomas in-

cluded relatively more with a high protein than did the other groups, but among them the proportion of cases of venous obstruction was also equally high. Furthermore, of the cases that showed venous obstruction, only 1 did not show a high protein, while the cases with no evidence of venous obstruction included only 1 with a high protein. It therefore appears that the location of the tumor is of more importance than its histologic type in determining the protein level.

A similar theory of venous obstruction has been proposed by Stookey[28] and by Merritt and Fremont-Smith[29] to explain the high lumbar-fluid protein found in cord tumors. Thus, the high protein findings in both cerebral and cord tumors seem about to be put upon a common pathological basis. It may well be, however, that the mechanism is not limited, as Deane thinks, to pressure on the internal cerebral venous system where there is a conspicuous dearth of anastomoses, but that under certain circumstances the protein rise may result from congestion in other parts of the venous system.

ENCEPHALOGRAPHY

The benefits of encephalography would be made available to many more patients if it were not for the unpleasant reactions which usually follow its use. Schwab and von Storch[30] have inquired into the nature and causes of these reactions and have presented some valuable data gained from their own experience and from the literature. After listing the common clinical reactions to encephalography, such as headache, nausea and sweating, which are familiar to all who have used the procedure, they note that these occur regardless of the type of gas used and are of about equal intensity, except after the injection of helium, nitrous oxide or ethylene, all of which cause a much milder reaction. However, of these three gases, the second disappears so rapidly that adequate encephalograms cannot be obtained, and the last is unsafe because it is so explosive.

The important changes in the cerebrospinal fluid incident to encephalography are an increase in the white cells, — largely polymorphonuclears, — a rise in its protein content and the occurrence of red cells. These are all manifestations of an increase in the cerebrospinal vascular permeability, which is a part of the meningeal irritation incident to the injection of any gas. Headache, nausea and the other clinical symptoms are all due to this meningeal irritation, the intensity of which has been found to be directly proportional to the amount of gas injected. An unexpected discovery was that in no case did the cerebrospinal fluid pressure rise following encephalography; instead, it tended to be normal or below the initial pressure. (This does not apply to ventriculography.) Thus the common conception that the unpleasant symptoms which follow this procedure are due to an elevated pressure must be abandoned, and one cannot hope to relieve the symptoms by the simple withdrawal of fluid.

An important contribution to the technic of encephalography is emphasized by these authors, who find that the reactions to it are definitely reduced by using the continuous replacement method instead of alternately removing cerebrospinal fluid and replacing it with air. The latter procedure causes marked fluctuations in cerebrospinal-fluid pressure during encephalography, massaging the brain and resulting in hyperemia, hemorrhage into the cerebrospinal fluid and an increased number of unpleasant symptoms.

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 24321

PRESENTATION OF CASE

A twenty-five-year-old, white, American male entered the hospital with the complaint of pain and swelling of the left knee of seven years' duration.

Seven years before entry he received a heavy kick on the lateral side of the left knee and about six months later began to notice a sensitive spot over the lateral femoral condyle. There was no pain or limitation of motion at that time. This condition persisted unchanged for the next five years, but two years before entry he began to notice a slowly enlarging lump on back of the left knee, with some limitation of motion of the knee. X-rays were taken at an outside hospital which were said to show a bony deposit on the back of the left knee consistent with myositis ossificans. The tumor was removed surgically, and the patient was told that it had not been fastened to surrounding tissues and shelled out easily. After the operation, limitation of motion and stiffness of the knee became more marked, and several months before entry he noticed the appearance of a new hard lump in the operative scar. He was given a series of fifteen x-ray treatments lasting over a period of six weeks and ending about one month before entry. He was advised to stay off the leg and went about on crutches during the month before entry. At the time of entry he complained of a dull ache extending down the back of his leg when he moved it. There was a swelling behind the knee, limitation of motion of the knee, and a sensitive spot over the lateral femoral condyle. He had no other symptoms and was in very good general health. He had recently been gaining weight.

At the age of eleven, following an attack of scarlet fever, he had had Bright's disease with edema and hematuria. He had recovered after a year, with no apparent sequelae. At the age of six he had had swollen neck "glands" which were incised and drained. His past history and family history were otherwise negative.

The temperature was 99.8°F., the pulse 80. The respirations were 20.

Physical examination was negative except for the left knee, which showed a 30-degree flexion contracture and a limitation of flexion to 90 degrees. Over the lateral and posterior aspects of the knee there was a moderately firm tumor mass, measuring 12 by 10 cm., which surrounded the left hamstring tendons and was loosely attached to the overlying skin. The mass could be moved to a slight extent. The skin over the mass and over the lateral femoral condyle was pigmented and atrophic. There was some diffuse swelling of the joint on its medial aspect but no intra-articular fluid could be demonstrated. There were no sensory nerve changes in the leg, and no enlargement of the inguinal lymph nodes.

The urine had a specific gravity of 1.025 and showed occasional red cells in the sediment. The blood showed a red-cell count of 5,070,000 with 80 per cent hemoglobin and a white-cell count of 10,200 with 76 per cent polymorphonuclears. The serum protein was 5.4 gm. per cent, and the phosphatase was 3.88 units per cent. An x-ray of the chest was negative.

On the fourth day an operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. CLAUDE E. WELCH: I think we can in all fairness assume that this tumor is a recurrence of the tumor removed at operation. Certainly such a long x-ray series should have produced a regression if the tumor were radiosensitive. Evidently there was not much response to the x-ray treatment. I am not clear as to the physical characteristics of the tumor.

DR. TRACY B. MALLORY: It was of stony hardness.

DR. WELCH: The red cells in the sediment may be ascribed to old Bright's disease. I should doubt that they have anything to do with this picture.

Are there any x-rays you wish to have shown?

X-RAY INTERPRETATION

DR. AUBREY O. HAMPTON: We have copies of films brought in by the patient before the biopsy and x-ray treatment and then others at about the time of entry. At the first examination he had an oval mass of calcification, the posterior margin of which followed the shape of the capsule of the joint. The anterior margin faded out in the region of the femur, but so far as I can tell, the bone is normal. The appearance is that of an area of lace-like calcification within the joint capsule but it is not so dense as the usual loose body. He had no other changes in the joint to suggest old hemorrhage due to hemophilia or trauma. Following the operation and treatment the character of the lesion has changed. It still contains calcium, but the calcium is present in little strands of lattice work which look almost like blood vessels. The

tumor is much larger and now lies apparently outside of the joint capsule. Certainly the joint capsule would have to be very large to contain it.

DIFFERENTIAL DIAGNOSIS (continued)

DR. WELCH: We are reduced then to consideration of the tumors that occur about the knee joint. I think we can eliminate all forms of infectious processes on account of recurrence of the tumor after removal and because of the lack of response to x-ray treatment. Also, I should think that we could eliminate the results of trauma to the joint or its surrounding structures, with resultant myositis ossificans. Myositis ossificans should not occur in this area, and would show no definite capsule, or a tumor that could easily be removed and then show rapid recurrence.

What are the tumors that can occur about the knee joint? We could probably list about twenty of them. But so many are uncommon, there is no point in mentioning them. A number of others we can dismiss rather rapidly, I believe. A form of metastatic carcinoma should not produce this picture. It certainly would not produce the gross findings at the first operation. A form of malignant lymphoma or reticulum-cell sarcoma would form a tumor which would be radiosensitive, which this tumor was not, nor do we have evidence of other enlarged lymph nodes. A peculiar manifestation of myeloma would be unusual at this age and is not consistent with the serum protein, which was normal. Giant-cell tumor originating in bone is unlikely, and if it originated from a tendon sheath it should not recur so rapidly. Osteogenic sarcoma is eliminated by the x-ray picture and also by the normal serum phosphatase. We are left with two other types of tumors, the so-called synovioma and fibrosarcoma. A fibrosarcoma could produce this picture in all respects if it originated behind the knee, but in such a case, it probably would arise from one of the branches of the sciatic nerve and would produce some changes such as sensory disturbances of the leg or muscle weakness. This patient did not have either.

How does this check with synovioma—a rare tumor, but one that occurs around the knee joint as frequently as anywhere else? A synovioma in a fair percentage of cases, about 25 per cent, has a previous history of trauma; swelling occurs about the knee joint and the tumor is usually mistaken for a benign one both before and at the time of the original operation because it usually is encapsulated and shells out very easily. It has a marked tendency to recur, which this tumor obviously had. Also, it is very intractable to x-ray treatment, and we may assume that this tumor did not respond to x-ray treatment. Calcification to such a marked extent is unusual, although small areas of calcium do occur. My diagnosis then is a synovioma arising from the knee joint.

DR. MALLORY: At this point I might give an additional piece of information that would help. At the first operation a diagnosis of myositis ossificans was made. Does that alter your opinion in any way?

DR. WELCH: I do not believe that myositis ossificans would recur this rapidly, and besides it does not produce this x-ray picture.

DR. MALLORY: Dr. Van Gorder, have you any comment?

DR. GEORGE W. VAN GORDER: I agree with almost everything that Dr. Welch has said except for the statement that the tumor is not characteristic of myositis ossificans. In my opinion, the x-ray appearance has many characteristics of this condition. Also, the tumor could be an osteochondroma or an osteogenic sarcoma, and these two conditions should be included in a differential diagnosis.

Some further information regarding this patient's previous history may be of interest, and I shall quote from a letter which was written to me by the patient's previous surgeon in New York. He writes as follows:

> I first saw the patient in October, 1935, at which time he had limited motion in his knee and a slight knock-knee deformity. There was a very tender, hard swelling just above and behind the head of the fibula, and an x-ray picture showed a shadow in the popliteal space with considerable calcification. I operated on him and was able to remove a tumor a little larger than a hen's egg, which was easily shelled out and not adherent in any place except for a small pedicle of soft tissue just over the head of the fibula. The tumor was not directly connected with bone, and we determined definitely at the time of operation that it was not in the knee joint. The pathological report of the excised tumor stated: "Chronic productive inflammation with calcification and ossification, possibly on the basis of trauma and hemorrhage." In other words, it might have been a calcified hematoma. The patient got along perfectly well following his operation and returned to see me several months later, at which time we found a tumor approximately half the size of the original one, but which was not so sensitive. At this time, we reviewed the case in conference and re-studied the pathological slides, which were sent also to Dr. Ewing of the Memorial Hospital, New York, who reported upon them as follows: "The original specimen shows a productive inflammatory process with much deposit of new bone, osteoid tissue and callus-like tissue. About some of the foci there is a very cellular, spindle-cell tissue which approaches a sarcomatous process. It seems probable that the recurrence is still more active and essentially sarcomatous. The outlook is serious and the case should be treated as a malignant process."

The boy's father wished to consult other doctors in regard to the case and came to Boston, where he decided to have his son undergo further treatment. It did not prove possible to obtain the slides from New York. The patient's leg was therefore prepared for operation with the idea of having a biopsy performed and, at the same time, being prepared to perform an amputation if the tumor should prove to be malignant.

DR. MALLORY: Have you anything further to add, Dr. Hampton?

DR. HAMPTON: I know that the x-ray department could not make a diagnosis. I do not know what the interpretation was. Do you know what we concluded, Dr. Van Gorder?

DR. VAN GORDER: The x-ray staff was not in accord, and we did not know when we operated just what the tumor would turn out to be. My own personal opinion was that the tumor was malignant, but I did not state anything further than this in my preoperative diagnosis.

DR. HAMPTON: I remember thinking of myositis ossificans more than any other condition, but I recalled a case that Dr. Mallory had talked about of primary osteogenic sarcoma developing in an area of calcification similar to myositis ossificans. I do not remember whether I thought that was the case here or not. I never saw a picture like it.

DR. VAN GORDER: At the time of operation I had a frozen section made by Dr. Mallory, who reported back that the tumor was definitely malignant. He was not able to say more than this at that time. In view of the pathological findings, I amputated the young man's leg at the lower end of the femur. Since the operation I have not received any very definite diagnosis from Dr. Mallory, although I have talked with him about the diagnosis on several occasions. So far as the patient himself is concerned, he has been walking on an artificial leg extremely well for the past year and a half and was examined by me about three weeks ago, when x-rays of the leg stump and his lungs showed no evidence of any local recurrence or metastases. The boy is working and walks miles a day on his artificial leg. He has lost no weight and is in excellent health.

It might be of interest to include in the discussion of this case a recent report on synoviomas by Dr. Bradley Coley in the January, 1937, number of *Surgery*, in which he states that the age incidence of this tumor is from nine months to sixty-four years and that the sex incidence shows that over two thirds of the patients having this tumor are males. The tumors are uniformly radioresistant, are most frequent about the knee joint, and have a wide variation of malignancy. When they metastasize they all go to the lungs, and there are 20 cases recorded in the literature to date. Dr. Coley included 15 additional cases from the Memorial Hospital in New York, making a total of 35 cases. Concerning the prognosis of these tumors, it is interesting to note that 20 per cent of the patients having synoviomas have lived for a period of 5 years, that 40 per cent have lived for a period of 3 years and that no case is known to have survived for more than 10 years. It is stated that in two thirds of the patients, life expectancy is less than 5 years. Needless to say, the treatment of these tumors has been very disappointing. Wide excision has been employed when possible, but otherwise, amputation.

CLINICAL DIAGNOSIS

Malignant tumor of the knee joint.

DR. WELCH'S DIAGNOSIS

Synovioma.

ANATOMICAL DIAGNOSES

Synovioma.
Myositis ossificans.

PATHOLOGICAL DISCUSSION

DR. MALLORY: The tumor which we received following amputation was very unusual in character. It seemed to be made up of a honeycomb-like structure of cellular compartments, each a few millimeters in diameter, with very thin, egg-shell-like walls of bone, and within the compartments were masses of small, highly malignant tumor cells. My impression was — and on this I feel very definite — that the bone was not being produced by the tumor. It was relatively inactive in appearance, showing a little resorption here and there but no proliferation. It was at no point in immediate contact with the tumor cells. I am inclined to believe that this patient did have myositis ossificans or something closely related to it at first; but that certainly was not the major trouble. On top of that he developed a malignant tumor which grew into the old area of ossification and also invaded extensively the surrounding tissues. The tumor is very undifferentiated and does not show the mixture of epithelial and small spindle-cell elements that is found in the most typical synoviomas. It certainly, however, is not a fibrosarcoma or any of the primary bone tumors. I finally called it a synovioma, and after examining our slides, Dr. Ewing agreed that this diagnosis was the most probable one.

CASE 24322

Presentation of Case

A thirty-two-year-old, white, American weaver entered the hospital with the complaint of paralysis of the lower legs of two and a half weeks' duration.

He was well until five months before entry when he began to have transient attacks of throbbing pain in the right costovertebral angle. The pain did not radiate and was not related to activity. The attacks occurred about once a day until four and a half months before entry, when he began to have girdle pain spreading around the costal margin in a band about 10 cm. wide. This pain occurred about three times a week and lasted only a few minutes until about a month and a half before entry when it began to last about half an hour. It was unrelated to movement, respiration or any bodily activity. Five weeks before entry he went to a chiropractor who "kneaded" his back. This caused sharp pain in the upper lumbar and midabdominal region, and three hours later he noticed for the first time that he had some difficulty in walking. His knees were weak, and he stumbled frequently. Two weeks later he had another treatment from the chiropractor which caused the same pain. That evening his legs became stiff and trembled a good deal. One week later, two weeks before entry, he was unable to move his legs, and the lower part of his body felt numb from the umbilicus down. He could not pass urine and had to be catheterized. Also, his bowels did not move, and it was necessary to give him enemas.

His father and three siblings had died of pulmonary tuberculosis, and another sibling had the disease. Four other siblings were living and well. Two years before entry he had had a bunch of swollen, tender, hot "glands" on the left side of his neck. The symptoms subsided after two months, but the swelling persisted. His past history and family history were otherwise essentially negative. He had not lost weight.

Physical examination revealed a thin, pale man lying in bed unable to move his legs. Many firm non-tender nodes measuring up to 1 cm. in diameter were palpable along the posterior margin of the left sternocleidomastoid muscle. There was also a marble-sized node under the left maxilla. The general physical examination was otherwise negative. The blood pressure was 106 systolic, 66 diastolic. Neurological examination revealed flaccid paralysis of the abdominal and leg muscles, without fibrillation. There was also fecal incontinence. The abdominal reflexes and knee and ankle jerks were absent, and there were bilateral Babinski signs with contraction of the abductors and adductors of the upper legs. There was total anesthesia below a level 5 cm. above the umbilicus, with a zone of hypesthesia on the right side about 7 cm. above the anesthetic zone.

The temperature was 99°F., the pulse 105. The respirations were 20.

The urine examination was negative. It contained no Bence-Jones protein. The blood showed a red-cell count of 4,330,000 with 80 per cent hemoglobin and a white-cell count of 8200 with 84 per cent polymorphonuclears, 11 per cent lymphocytes and 5 per cent monocytes. The blood Hinton test was negative, and the serum protein was 6.8 gm. per cent. A lumbar puncture showed an initial pressure of 0. Abdominal compression produced a few drops of fluid, but jugular compression had no effect. Three cubic centimeters of orange, cloudy fluid was removed by suction; this contained 34,500 red cells per cubic millimeter and a total protein of 1960 mg. per cent. Cisternal puncture showed normal dynamics, and normal fluid was obtained.

X-rays of the spine showed a fracture of what appeared to be the fourth dorsal vertebra with decrease in the size of the vertebra but no definite destruction. There was slight depression of the posterior border of the vertebral body. No soft-tissue masses were visible. The cervical spine showed no evidence of disease. An x-ray examination of the chest was negative. Lipiodol was injected into the cistern, and x-rays were taken over a period of four days. Some of the lipiodol remained in the cistern. After the patient had been sitting up for several hours, the migrating lipiodol was constantly found opposite the fifth and sixth dorsal vertebrae. None of it could be brought beyond the upper border of the seventh dorsal vertebra. In the area where the lipiodol was present, it was distributed fairly homogeneously around the cord although it appeared slightly more on the left than on the right. There was no characteristic cap formation.

His temperature fluctuated daily between 99 and 102°F., and his pulse rate varied between 100 and 125.

An operation was performed on the eleventh day.

Differential Diagnosis

Dr. Edwin M. Cole: We have here a story and picture of transverse myelitis in the middorsal region. The interesting thing is to determine what is the cause of the myelitis. We know that there was a spinal-fluid block at the time of lumbar puncture, and that is corroborated by the block of lipiodol, as seen by x-ray. Consequently, we probably have a tumor of some sort in the spinal

canal resulting in a pressure myelitis. I should say from the x-ray findings that Pott's disease of the spine is ruled out, or at least is not likely, in spite of the family history of tuberculosis. The symptoms have developed with a fair degree of rapidity. He had his first pain, which was localized, five months before entry, and four and a half months before entry it began to develop as a girdle pain and became more and more severe.

The history of the increase in pain and the motor symptoms following chiropractic treatment is striking. I do not suppose that even an enthusiastic chiropractor could fracture a normal vertebra. We know he had the fractured vertebra, and in spite of the x-ray findings, which show no evidence of bone destruction, the absence of other history of trauma forces me to suppose that the vertebra was infiltrated by tumor. Whether the fracture occurred at the time of the treatment, one cannot say.

Of the tumors of the spinal cord I suppose neurofibromas are the most common. Here the symptomatology developed, I think, in too rapid a sequence for the tumor to be a neurofibroma. Usually the motor symptoms or the history of pain is more prolonged in cases of neurofibroma than it is here. There are some other facts which should help us with the diagnosis. Physical examination speaks of firm, non-tender nodes in the neck, which we should like to associate with the spinal condition. Also, it seems to me, that the differential white-cell count is abnormal. In a count of 8200, 84 per cent polymorphonuclears is a fairly high proportion. The smear is not recorded. I suppose that means it was normal. However, the lymphocytes seem to be scarce in comparison with the polymorphonuclear leukocytes. Lymphoblastomas frequently involve the central nervous system, and under these conditions, often invade the spine or the skull.

There is one other point in the neurological examination. In spite of the fact that this is a picture of transverse myelitis in the middorsal region we find absent knee and ankle jerks. They should have been very active. The only explanation on the basis of the evidence — unless the loss of reflexes antedated the present illness — is an extensive involvement of the spinal cord and of the cauda equina. Complete block with neoplasm in the spinal canal of course accounts for the high total protein. I believe the red cells in the spinal fluid are the result of trauma and bleeding following an attempt to obtain fluid in a case in which a free flow of fluid was absent. I believe this is a case of lymphoblastoma with involvement of the spinal cord and spine, in an aleukemic phase with suppression of lymphocytes.

Preoperative Diagnosis

Extramedullary or epidural tumor of spinal cord.

Dr. Cole's Diagnosis

Lymphoblastoma of vertebra involving spinal cord and spine.

Anatomical Diagnosis

Hodgkin's disease of spinal canal.

Pathological Discussion

Dr. Tracy B. Mallory: This patient was operated on, a laminectomy done and the cord explored by Dr. Hodgson, who found a cylindrical epidural tumor extending from the fifth to the ninth thoracic vertebra. This was biopsied and on frozen section the diagnosis of Hodgkin's disease was made, which was later confirmed by the sections. No attempt was made to remove the tumor radically, and the patient was referred to the x-ray tumor clinic for subsequent treatment.

Dr. Wyman Richardson: Was the fourth dorsal vertebra involved in the tumor?

Dr. Mallory: I think we have to assume so, but of course we have no proof of it. Involvement of the vertebrae is quite common in Hodgkin's disease, and I see nothing against it here except the fact that the x-ray man could not actually demonstrate destruction of the vertebra.

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THE NATIONAL HEALTH PROBLEM

IF one may judge from contemporary comment, — some of which is reprinted in this issue of the *Journal*, — the public is thoroughly aroused concerning the necessity for a national health program. This has been brought about in many ways: by unfortunate personal experiences caused by improper or inadequate medical care, by insufficient local facilities for care or by economic burdens brought about by illness and all that goes with it; by education through newspapers, magazines and books and over the radio as to what constitutes proper and adequate medical care; by the published reports of committees appointed for the purpose of ascertaining the existing conditions of medical care; by newspaper publicity, apparently engendered in no small part by the attitude of organized medicine to the general problem. The question has assumed such importance that, according to the newspapers, it has already been made a national political issue.

Can we, as physicians, honestly say that this need for a national health program is a myth; that "everything is evolving satisfactorily?" To do so would be to deny many things that we know exist. Can we contradict such statements as: thousands of women annually die in childbirth from improper or inadequate care; many thousands of men and women die each year as the result of needless or technically poor surgery; the lives of many, many thousands of people could be saved annually if infants received proper care and nourishment during the first year of life, if all suitable patients with pneumonia received serum treatment, if more cases of tuberculosis, diabetes and cancer were diagnosed earlier and treated properly, and if all syphilitic patients received adequate antisyphilitic treatment; many communities lack the facilities for proper medical care? We appreciate that these are facts and that they are a true cause for concern. To be sure, we cannot be held responsible for all the contributing factors, yet we should be willing to co-operate in any attempt to correct them. The acknowledged financial burden of illness is largely an economic problem, yet, again, we should do our utmost in an effort to discover means of overcoming it.

This thought is ably expressed by Beverly Smith in an article "Diagnosing the Doctors" (condensed from the *American Magazine*) in the August issue of the *Reader's Digest* as follows:

> Our doctors are probably the best in the world. They compare favorably with the rest of us in public spirit; many of them give more than half their time to charity work. But some of them high in medical societies oppose all change in the present system of medical care, saying "everything is evolving satisfactorily."
>
> The public does not believe that medicine is evolving satisfactorily. It does not blame the medical profession as a whole, but believes that the distribution of medical care is lagging far behind the *science* of medicine. It believes that we need more and better doctors; and it is willing to pay more, in total, for medical care if the burden is more fairly distributed, and if the doctors will organize themselves to give more efficient service. . . .

Fundamentally, the problem is *not* national, only in so far as it is of national interest and governmental grants-in-aid may be necessary: the many sides of the problem are chiefly local — what exists in one community does not necessarily obtain in another. Furthermore, physicians alone cannot suggest the proper remedy: the opinions of members of social-service agencies, of welfare boards, of public-health departments and of nursing, industrial, fraternal and other community organizations are necessary for the success of any local program. Such a plan was suggested in 1936 in a report (New Eng. J. Med. *214*: 1059-1064, 1936) by Dr. Ernest L. Hunt's subcommittee of the Committee on Public Relations of the Massachusetts Medical Society. This report recommended the formation of district health councils and of a state health council for the specific consideration of practically all the aspects of the problem that are being currently discussed. It was approved by the Council of the Massachusetts Medical Society, and essentially the same plan has been recommended by the Executive Committee of the Board of Trustees of the American Medical Association (J. A. M. A. *110*: 212, 1938).

Such health councils seem to offer the logical method of attack, but little or no interest has been shown by the district medical societies. If steps had been taken earlier to investigate local problems along the lines suggested by Dr. Hunt's plan, much of the present unpopularity of organized medicine might have been avoided. Even now it seems likely that a great deal could be accomplished by the functioning of such health councils.

JOHN SHAW BILLINGS

THE hundredth anniversary of the birth of John Shaw Billings occurred April 12, 1938, and was fittingly recognized by the Institute of the History of Medicine of Johns Hopkins University. In the bulletin issued from this institute a series of papers* was published, forming a memorial number to one of the greatest figures in American medicine. At the time of the centennial celebration at Baltimore it was pointed out by Lieutenant-Colonel Edgar E. Hume that Billings spent nearly thirty-four of his seventy-five years in the active service of the United States Army Medical Corps. He was commissioned shortly after his twenty-fourth birthday and did not retire until the age of fifty-eight. During this long period he saw field service in the Civil War, directing a hospital and being with the Army of the Potomac in the battles of Chancellorsville and Gettysburg. Later he made a survey of the United States Marine Hospital Service. His greatest work, however, was in relation to vital and medical statistics of the census and the late Dr. William H. Welch once said of him: "He was the greatest vital statistician this country has produced."

By most physicians, however, he will be remembered as the curator of the Army Medical Museum and the librarian of the Army Medical Library. In the library he began the *Index Catalogue*, the fifty volumes of which, prepared under his direction, serve as Billings's most eloquent memorial. He was, without doubt, the greatest bibliographer in the history of medicine and through his work on the *Index Catalogue* alone he achieved immortality. Billings, moreover, was responsible for the *Index Medicus*, supplementing the *Index Catalogue*.

Billings' influence on medical education has often been commented upon. He gave a course of lectures on medical history at Johns Hopkins University, one of which has been re-published in the memorial number previously mentioned. This important address apparently roused great interest when it was delivered in 1878, and it was printed as a pamphlet by the trustees of Johns Hopkins University. Only three of these little pamphlets seem to have survived, and it is therefore fitting that this rare contribution should now be reissued. Another paper of great importance, entitled "Higher Medical Education," written in the same year and published in the *American Journal of Medical Sciences*, is also reprinted.

Finally, it should be pointed out that he planned the original buildings for the Johns Hopkins Hospital, having in mind that this should be a teaching hospital. When he resigned from the Army

*John Shaw Billings Memorial Number. Bull. Inst. Hist. Med. 6:223-386, 1938.

in 1896, he took up a new field of endeavor and became the librarian of the New York Public Library. There he brought together three great collections of books and made them into a unified whole. Before Billings died in 1913, he was able to see the present great library building open for public use under his direction.

When one considers all that John Shaw Billings did in medical history, bibliography, hospital construction, vital statistics, education and librarianship, one feels that indeed a man of outstanding attainments was born one hundred years ago and that, with all he accomplished, it is not unnatural that many tributes were paid to him. The one, however, which is most impressive is that written by Dr. Welch: "Of all the men I have ever known, he was the wisest."

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Boston

CASE HISTORY NO. 84. PARTIAL PLACENTA PREVIA

Mrs. A. B., a thirty-five-year-old woman, was admitted to the hospital on July 10, the approximate date of her confinement. She gave a history of having started to bleed twelve hours before admission. She had bled several times during the preceding two months. No examination had been made to determine the cause of this bleeding.

The family history was essentially negative. The patient's history was negative, except for an appendectomy and a tonsillectomy. Four previous pregnancies had resulted in normal deliveries. Catamenia began at sixteen years of age, had a twenty-eight-day cycle and lasted four days. Her last period was October 6, making the expected date of confinement July 13 to 16.

Physical examination showed a slightly pale and apprehensive but otherwise robust woman, bleeding continuously but not profusely. The flow contained a few small clots. Although the patient was apprehensive, there was no real pain. Her temperature was 98.7°F., and the pulse 90 and of good quality. Her blood pressure was 110 systolic, 80 diastolic. Her heart showed no enlargement; there were no murmurs. Her lungs were clear and resonant; there were no rales. Abdominal examination revealed a full-term uterus, which was soft and not tender. There were a few painless uterine contractions. The presenting part was high and unengaged in an OLA position. The pelvic measurements were as follows: interspinal diameter 28 cm., intercristal 30 cm., external conjugate 20 cm., transverse diameter of the outlet 10 cm., and anteroposterior diameter of the outlet 10 cm.

A catheterized specimen of urine showed no sugar or albumin and a negative sediment. Her hemoglobin was 65 per cent (Tallqvist), and the red-blood-cell count was 3,850,000.

Because the patient, at term, was still flowing and not in labor, it was deemed wise to make a vaginal examination to determine the source of the bleeding. The delivery room was prepared for cesarean section, and a Voorhees bag (No. 6) and sterile packing strips were at hand. Under nitrous oxide, oxygen and ether anesthesia the cervix was found to be soft and dilatable, with the placenta covering the cervix except for a small area posteriorly. The membranes were ruptured artificially, and the Voorhees bag was inserted intraovularly. This procedure caused only a slight amount of bleeding. A 1-lb. weight was attached to the end of the bag, and labor started at once. The family physician was instructed by the consultant to watch the patient closely and to notify the consultant when there was evidence of full dilatation so that the latter might be in attendance before the bag was extruded. The family physician, not realizing the importance of this advice, left the patient with an inexperienced nurse. The nurse later notified him that the bag had been expelled and that the patient was bleeding profusely. He went immediately to the hospital, packed the cervix, and notified the consultant who arrived shortly thereafter. The patient was found to be fully dilated, and a version was easily and quickly done, with the delivery of a vigorous 8-lb. baby. The placenta was delivered immediately, and there was only a moderate amount of subsequent bleeding. The patient went into shock shortly after delivery and died before a transfusion could be given. No donor had been typed.

Comment. Any bleeding in the last trimester deserves investigation. The history of this case shows that the patient bled several times without any attempt being made to ascertain the cause. Partial placenta previa in a woman who has borne children and is at term almost always should be

A series of selected case histories by members of the section will be published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the section.

treated by vaginal delivery. Whether one ruptures the membranes or uses a bag depends upon how much the placenta covers the cervix. Marginal previas are usually treated successfully by simply rupturing the membranes. In a case such as this, in which the previa was almost complete, a bag is the ideal method of treatment.

Had the consultant remained with this patient after the bag had been inserted or had the patient's physician been in attendance, the hemorrhage following the extrusion of the bag might have been controlled. This condition is one of extreme seriousness, and attendance is the medical attendant's responsibility and should never be relegated to a nurse. The position of the obstetric consultant is oftentimes an unhappy one. It is undoubtedly wiser if the consultant takes complete charge and remains with the patient until she is delivered. This sometimes is impossible because of the physician's attitude, but the patient, after all, is the only one who should be considered. Had this patient been typed when she entered the hospital and a donor been in attendance, — this should always be routine, — this fatality might have been prevented.

CORRECTION

The name of Dr. Clifford L. Derick should have been included with the list of councilors elected to represent the Middlesex South District Medical Society. Dr. Derick was duly elected and attended the annual meeting of the Council on June 1, 1938.

DEATHS

BAILEY — Walter C. Bailey, M.D., of 10 Craigie Street, Cambridge, died at his summer home in Barnard, Vermont, July 31. He was in his sixty-ninth year.

Born in Somerville, he was graduated from Harvard College in 1894 and received his degree from Harvard Medical School in 1898. After studying a few years in Vienna, he became associated with Dr. Vincent Y. Bowditch, of New York.

Shortly before the outbreak of the World War, Dr. Bailey was head of the personnel department of the American Red Cross at Washington, D. C. He left this post to become head surgeon of the Massachusetts Hospital for Tuberculosis. At the request of the Rockefeller Foundation he was placed in charge of a hospital zone in France, during the War. He was decorated by the Polish government for his work in organizing the first relief expedition to enter that country.

Before his retirement, in 1936, he was associated with the New England Life Insurance Company. His memberships included the American Medical Association, the American Clinical and Climatological Association, and the Tavern and the Somerset clubs of Boston; he had been a retired fellow of the Massachusetts Medical Society since 1936.

His widow, two daughters and two sons survive him.

SHANKS — Charles Shanks, M.D., of 645 Kempton Street, New Bedford, died at his home August 2. He was in his sixty-first year.

Born in New Bedford he attended the public schools there, receiving his degree from the Harvard Medical School in 1903. He served a year as intern at the Eastern District Hospital, Brooklyn, New York, and in 1905 began to practice medicine in New Bedford.

Dr. Shanks was former associate medical examiner and former medical inspector in the New Bedford schools. His memberships included the New Bedford Medical Society, of which he was a former secretary, the Bristol South District Medical Society, the American Medical Association and the Massachusetts Medical Society.

His widow, two sons and three brothers survive him.

VAN ALLEN — Harvey W. Van Allen, M.D., of 19 Maple Street, Springfield, died at his home, August 2. He was in his seventieth year.

Born in Jersey City, New Jersey, he lived in the western part of New York State, attending Cook Academy, Cornell University and Albany Medical College, from which he received his degree in 1891. The same year he went to Springfield where he became the first house physician at the Springfield Hospital. After serving a year he started private practice, early identifying himself in x-ray and radium work. He was a member of the board of chancellors of the American College of Radiology since its organization, and had recently been elected its president. A consultant on the staffs of the Springfield and Wesson hospitals, he was also a staff member of the Mary Lane Hospital in Ware and the Cooley Dickinson Hospital in Northampton.

Among his affiliations were fellowships in the American Medical Association and the Massachusetts Medical Society and memberships in the American Roentgen Ray Society, New England Roentgen Ray Society, Radiological Society of North America, American College of Radiology, Springfield Medical Society, Springfield Academy of Medicine and Rotary Club.

His widow, a daughter and a son survive him.

MISCELLANY

CONTEMPORARY COMMENTS ON THE NATIONAL HEALTH CONFERENCE

The following are excerpts from an editorial "The National Health Conference" in the *New York Herald Tribune* (July 21):

> The program brought forward by the technical committee furnished a useful basis for debate even if its scale was grandiose. . . .
>
> Sound as these ideals are, it would be a tragic mistake, in our judgment, if any such vast program were suddenly imposed upon the nation. . . . More than ever the need is for patient, evolutionary progress, state by state, with the Federal government leading and advising rather than directing.
>
> In such a gradual advance the co-operation of the great mass of medical men is absolutely essential. . . . The socialization of the doctor and the regimentation of the patient . . . have been rejected by the good sense of social worker and medical scientist alike. . . . The path lies open for a fresh approach in which every qualified element of expert opinion would participate.

We hope the medical profession will find a way to play its essential part — assume, indeed, the leadership which is its right — in this great task. . . . The call is simply for the reorganization of an old generosity and an old loyalty, so that a nation of 120,000,000, with untold riches of modern science, may be served as efficiently and humanely as was the small community by its devoted general practitioners in more primitive days.

The following are excerpts from an editorial "The Problem of Health" in the *New York Times* (July 25):

Last week organized medicine, labor, hospital executives, industry, farm federations, women's organizations, public health officials, social workers, New Deal administrators discussed in Washington the extension of medical care to millions of families now unable to pay for it. By bringing these diverse groups together the National Health Conference achieved its primary purpose. Possibly the familiar social and economic aspects of medicine were discussed at unnecessary length and hence at the expense of the professional methods whereby the highest type of care can be brought to the groups and regions that need it most. But much was gained by letting the various organizations speak their minds. Especially significant was the demand of all sections of organized labor and agriculture for private and governmental action. . . .

It is lamentable that the American Medical Association should have made so poor a showing. Beyond a polite expression of willingness to co-operate with the Government in carrying out any program that may eventually be adopted, and to place its records and experience at the disposal of the Government, it had nothing to offer. Possibly its spokesmen may have returned to their homes convinced that the old position can no longer be maintained and that it is the plain duty of organized medicine to recognize voluntary insurance, the group practice of medicine, the co-operative purchase of medical care as legitimate devices for bringing medical care to a large group that needs it and to set up medical standards for public and private agencies. With politically powerful labor, farm and women's organizations aroused, Surgeon General Parran may be right in predicting that public health may be the next great social issue in this country.

The following is an excerpt from an article "Incipient Uprising Among Consumers of Medical Service" in *Science News Letter* (July 30):

An air of incipient uprising on the part of the consumers of medical service hovered over the National Health Conference.

Contrasted with the dogged insistence that all's well in the medical world as seen by American Medical Association representatives, the farmers, labor representatives, the parents and the liberal faction in the medical profession made it very plain that all who are ill in mind and body are not being served as they could and should be. . . .

The following are excerpts from an article "Medical Care Has Become a Major Political Issue" in *Science News Letter* (July 30):

The great problem of medical care for all has been projected by the three-day National Health Conference into a major position among the issues before the nation. . . .

Organized medicine at the conference just closed undoubtedly had impressed upon it the extraordinary fact that there is more demand for their commodity of disease prevention and treatment than they can supply. They were told that hundreds of practicing physicians are partially unemployed — with office hours too often leisure hours — while ill millions go untreated. It is a gigantic problem of distribution.

The public is calling for the doctor and trying to work out the best way to pay him. This is an old personal problem that is becoming a national issue. It is one that everyone will hear more about in the months to come.

STAFF CHANGES AT MIDDLESEX COUNTY SANATORIUM

The trustees of the Middlesex County Sanatorium, Waltham, have recently made the following announcement regarding changes in the medical staff:

Dr. Henry D. Chadwick, commissioner of the Massachusetts Department of Public Health, has been appointed medical director.

Dr. Lowrey F. Davenport, assistant superintendent, has resigned to enter private practice with offices at 1101 Beacon Street, Boston. Dr. Davenport has been appointed a member of the consulting staff.

Both of these changes will become effective September 1, 1938.

NOTES

At the annual meeting of the Massachusetts Board of Registration in Medicine, held July 14, Dr. Francis R. Mahony, of Lowell, and Dr. Stephen Rushmore, of Boston, were elected chairman and secretary, respectively, for the ensuing year.

Dr. Otto Krayer, associate professor of pharmacology at the Harvard Medical School, has recently been appointed to the faculty of Peiping Union Medical College. He will become professor of pharmacology in September, 1939.

CORRESPONDENCE

A RESPONSE TO A LETTER

To the Editor: I have just read in your issue of July 28 the letter, entitled, "National Health Conference," signed by Robert L. DeNormandie. In the absence of Dr. Olin West on a brief vacation, I would like to call attention to some information which apparently was not available to Dr. DeNormandie in his effort to evaluate the nature of the conference.

Dr. DeNormandie points out that "Dr. Abell's carefully worded statement the morning of the second day of the conference, after Dr. Olin West's reactionary remarks the day before, for the moment gave the conference hope that the American Medical Association saw the light."

The program of the first day of the conference was arranged to permit Miss Roche, Miss Lenroot and Dr. Parran to speak in the morning without any subsequent discussion. The program of the afternoon was arranged to have Dr. Abell speak first, after which there were five representatives of various welfare organizations, followed by Dr. Hugh Cabot. Dr. Cabot devoted his entire address (which you might look over and perhaps print in part in

the *New England Journal of Medicine*) to an attack on the ethics and principles and motives of the physicians of this country. I do not say that he attacked the American Medical Association but specifically the medical profession. I submit some quotes from his complete address:

> I was interested to hear the President of the American Medical Association refer to the survey which they are now carrying out. I do not myself feel much confidence in the result because I am not clear by precisely what method the physicians are to know about the people whom they never see. The people who get no medical care obviously do not crowd the doctors' offices.

Thus Dr. Cabot purposely neglected the vast amount of free medical service given to the indigent by physicians in hospitals, clinics and dispensaries as well as in their homes. He continued:

> Dr. Abell said that the medical schools of this country are today superior to any in the world. I think he is a little more proud of his schools than I am.*
>
> I am afraid I shall offend somebody by saying that the maintenance of the standards of medical practice by the medical profession as at present organized has been grossly unsatisfactory. There are very large areas in this country where the practice of medicine as at present carried on is medieval.
>
> The profession is quite incapable of keeping up its own standards. It can punish gross dereliction; it cannot keep lazy, shiftless people up to a standard, and doctors are going occasionally of course — I admit that they are a preferred group, they are wonderful people, but you will find a few of them are a bit lazy, you know, and a bit something else, so that they are almost human at times.

These are just a few quotations and it is impossible to convey in the quotations the sneering and disparaging tone in which they were delivered.

Following these remarks, Dr. West (naturally incensed) stated to the conference that he doubted the medical profession was any more proud of Dr. Cabot than he was of the medical profession. At once a considerable number of persons in the audience representing charitable, welfare, social-service, and labor organizations — and this group constituted at least 90 per cent of those in attendance — responded by a defense of Dr. Cabot and an attack on the medical profession.

It should be obvious that this was not a conference in any sense of the word but rather a method of focusing public attention increasingly on the problem of medical care. Indeed Dr. Thomas Parran stated in his address that medical care might well be the next great social-political issue in this country.

On the night of Monday, July 18, I attended a dinner at which were present Miss Roche, Dr. Parran, Mr. Altmeyer, Dr. Bishop, Miss Lenroot and others responsible for the development and leadership in this "conference." I stated to them on that occasion that the placing of Dr. Cabot at the end of the Monday program as an incitement to this group against the American Medical Association was being taken by most of the physicians present at the conference — I do not include Dr. DeNormandie — as a definite indication of bad faith and that several had said at its adjournment that little was to be gained by their attendance and that they might as well depart at once. Miss Roche asked me what might be done to correct this impression in order that the physicians concerned might continue to participate. I then suggested to her and to Dr. Bishop, who was to preside on Tuesday, that Dr. Bishop reaffirm the good faith of those responsible for the conference and that opportunity be given to a representative of the American Medical Association to express to the conference the willingness of the association to do its utmost in co-operating with the government in working out suitable plans for medical care for all the people. The result of this conversation was the statement made by Dr. Bishop and Dr. Abell at the Tuesday morning session to which Dr. DeNormandie refers.

I give these facts to your readers merely that they may not accept in toto Dr. DeNormandie's estimate of the part played by the American Medical Association's representatives in the conference.

We have done and are doing our utmost to co-operate with government agencies when given the opportunity in working out these plans for the good of all of the American people. However, as I said in the midst of the "torrent of words," which perhaps came somewhat too rapidly for some of the listeners to assimilate, we had not really participated in a conference but we had instead been given by the patient a prescription which the physician was asked to sign in order that the patient might get it filled.

Until the complete report of this "conference" is available so that individual physicians may see for themselves the nature of the organizations represented by those who spoke and read for themselves the verbatim copy of the remarks made by these representatives, it would be advisable to withhold judgment.

MORRIS FISHBEIN

535 North Dearborn Street,
Chicago.

*The complete sentence in the official release of Dr. Cabot's speech reads: "I think he is a little more proud of his schools than I am, but they are very good, and they will stand comparison with any." ED.

DOCTOR WANTED

To the Editor: This district, including four small towns, is without a doctor, the nearest one being thirty miles distant. At the annual meeting the district raised nine hundred dollars as a retaining fee to encourage some doctor to settle here.

I realize it is rather late in the year to find a suitable man, but the committee was tardy in getting together. I hope you may have some one to suggest. A married man would be preferred and one that understands small-town people and their problems.

The committee will appreciate any suggestions or recommendations.

ILSA MCGINLEY, R.N.

Wentworth Location,
New Hampshire.

HOME TREATMENT OF TUBERCULOSIS

To the Editor: The article in the July 21 issue of the *New England Journal of Medicine* by Dr. Ralph Volk, on "The Treatment of Pulmonary Tuberculosis," should not go unchallenged.

It is obviously an attempt to set up a defence to justify the home treatment of pulmonary tuberculosis. Theoretically it may be possible to treat active pulmonary tuberculosis successfully in the home; practically it is not.

Twenty-five years ago the question might have been justly controversial. Today we cannot by any stretch of the imagination match in the home the benefits of treatment to be obtained in the modern sanatorium, with its trained personnel and complete facilities.

This opinion is based on many years of private practice and personal observation.

WILLIAM S. STREKER, M.D.

179 Elmwood Avenue,
Providence, Rhode Island.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

To the Editor: In addition to the articles enumerated in our letter of June 2 the following have been accepted:

Abbott Laboratories
- Estrone — Abbott
  - Ampules Estrone, 0.1 mg. in oil, 1 cc.
  - Ampules Estrone, 0.2 mg. in oil, 1 cc.
  - Ampules Estrone, 1 mg. in oil, 1 cc.
  - Vaginal Suppositories Estrone, 0.02 mg.
  - Vaginal Suppositories Estrone, 0.2 mg.
- Estriol — Abbott
  - Capsules Estriol 0.06 mg.
  - Capsules Estriol 0.12 mg.
- Ephedrine Alkaloid, Hemihydrate— Abbott
- Ampules Sodium Thiosulfate — Abbott, 0.5 gm., 5 cc.
- Ampules Sodium Thiosulfate — Abbott, 1.0 gm., 10 cc.

Ciba Pharmaceutical Products, Inc.
- Ampules Solution Nupercaine 1:1500 in 0.5 per cent Solution of Sodium Chloride, 20 cc.
- Ampules Solution Nupercaine 1:1000, with Epinephrine 1:100,000, 2 cc.
- Ampules Solution Nupercaine 1:1000, with Epinephrine 1:100,000, 5 cc.

Hoffmann-LaRoche, Inc.
- Prostigmin Bromide
  - Prostigmin Bromide Tablets, 0.015 gm.
- Prostigmin Methylsulfate
  - Ampules Prostigmin Methylsulfate 1:2000, 1 cc.
  - Ampules Prostigmin Methylsulfate 1:4000, 1 cc.

Lakeside Laboratories, Inc.
- Solution Ephedrine Hydrochloride, 3 per cent
- Ampules Ephedrine Sulfate, ¼ gr., 1 cc.
- Capsules Ephedrine Sulfate, ⅜ gr.
- Capsules Ephedrine Sulfate ¼ gr.

McKesson & Robbins, Inc.
- McKesson's Cod and Halibut Liver Oil

Merck & Co., Inc.
- Vitamin B_1 Hydrochloride (Thiamin Chloride) — Merck

Smith, Kline & French Laboratories
- Benzedrine Sulfate
  - Benzedrine Sulfate Tablets

John Wyeth & Brother, Inc.
- Wyeth's Suppositories Digitalis Leaf

PAUL NICHOLAS LEECH, *Secretary.*

535 North Dearborn Street,
Chicago, Illinois.

REPORT OF MEETING

NEW ENGLAND HEART ASSOCIATION

The regular monthly meeting of the New England Heart Association was held at the Boston Medical Library on April 25. The following program was presented:

HEART DISEASE IN PREGNANCY AT THE WORCESTER CITY HOSPITAL. Frank B. Carr, M.D., Worcester.

To appear later in the *New England Journal of Medicine.*

ELECTROCARDIOGRAPHIC CHANGES IN VITAMIN B DEFICIENCY. Cecil C. Dustin, M.D., Henry L. C. Weyler, M.D., and Charles P. Roberts, M.D., Providence, Rhode Island.

The literature was reviewed, and clinical data on 6 cases of beri-beri exhibiting electrocardiographic changes were presented. The most frequent abnormalities found in the electrocardiogram were prolongation of electrical systole, a rapid rate and a tendency to low voltage with, in most cases, a flattening of the T waves in Leads 1, 2 and 3. The chest leads showed the least changes. In subsequent records taken after the institution of vitamin B therapy, all cases showed a slowing of the rate, an increase in the voltage and varying changes in the ventricular complexes. These changes occurred quite rapidly, usually within a few days, and curiously enough, in some cases the electrocardiogram became more abnormal before it returned toward normal. Such electrocardiograms could be easily misinterpreted if the clinical conditions were not known.

GALL-BLADDER DISEASE AND CORONARY SCLEROSIS. Eugene H. Drake, M.D., Portland, Maine.

The case history was presented of a sixty-seven-year-old man who for four years had had mild hypertension and angina pectoris. Three attacks of acute epigastric and substernal pain required full doses of morphine sulfate for relief. An electrocardiogram showed an inverted T wave in Lead 1 and a flat T wave in Lead 2. Subsequent records showed no significant changes. On the third day after the last attack of pain, a tender mass was felt in the right upper quadrant, and slight jaundice was noted in the conjunctivae. A distended, gangrenous gall bladder was removed at operation. During the past year the patient has led a quiet life without epigastric or substernal pain.

A CASE OF HEMOPHILIA WITH HEMOPERICARDIUM AS A RESULT OF TRAUMA. Cecil C. Dustin, M.D., Providence, Rhode Island.

Observations were presented on a forty-two-year-old Italian laborer with hemophilia who developed clinical and x-ray evidence of hemopericardium and cardiac tamponade following a blow over the midsternal region. On two occasions pericardial paracentesis was necessary, and in each instance was followed by clinical improvement. The patient was seen one month after discharge and appeared to be in fair condition. His further course is to be followed and reported later.

CLINICAL OBSERVATIONS ON THE USE OF QUINIDINE. James Z. Naurison, M.D., Springfield, Massachusetts.

The history, the pharmacology and the untoward effects of quinidine sulfate were discussed. Its action antagonistic to that of digitalis was outlined. Its principal use is in the treatment of certain arrhythmias, namely auricular and ventricular extrasystoles, paroxysmal tachycardias of both auricular and ventricular origin and

selected cases of auricular fibrillation. Because it prolongs the conduction time, it is contraindicated in both auriculoventricular and intraventricular heart block. Its use is further contraindicated in the presence of congestive heart failure, marked hypertrophy and dilatation of the heart, and the end stages of mitral and tricuspid valvular disease. The methods employed in administering the drug were stressed.

AURICULAR FLUTTER: Report of an unusual case. Frank T. Fulton, M.D., Providence, Rhode Island.

An infant of three months weighing 8 lb., 10 oz., and said to have been a full-term baby, weighing at birth 7 lb., 8 oz., was admitted to the Rhode Island Hospital with a history of acute respiratory infection of two or three days' duration.

The child showed evidence of marked malnutrition, with fever and cyanosis, and was soon found to have congenital heart disease with auricular flutter, the auricular rate being 390 and the ventricular rate 190. Because of the flutter, the patient was started rather cautiously with digitalis, the dose being gradually increased until at the end of two weeks she was getting about 1 gr. a day. This was further increased until 2 gr. a day was being given, and that was continued for a week. Subsequent dosage was about 1 gr. a day.

Electrocardiograms were taken frequently. The flutter persisted for about three months after admission. The ventricular rate was slowed somewhat. The general nutrition of the child improved fairly rapidly. At the end of nine weeks' treatment with digitalis, the pulse was noted to be slower and regular, and the electrocardiogram showed a normal rhythm at a rate of 116. The digitalis was discontinued about two weeks later. The normal rhythm was first noted on April 6, and the child was under observation until June 15, the rhythm remaining normal and the general condition of the child being good. She then disappeared from observation.

The unusual features in this case were persistent auricular flutter in a very young infant and a very marked tolerance for digitalis.

NOTICES

AMERICAN BOARD OF INTERNAL MEDICINE, INC.

Written examinations for certification by the American Board of Internal Medicine will be held in various parts of the United States on Monday, October 17, 1938, and on Monday, February 20, 1939.

Formal application must be received by the Secretary before September 15 for the October, 1938, examination, and on or before January 1 for the February, 1939, examination.

Application forms may be obtained from William S. Middleton, M.D., secretary-treasurer, 1301 University Avenue, Madison, Wisconsin.

SOCIETY MEETINGS AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, AUGUST 15

TUESDAY, AUGUST 16

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

FRIDAY, AUGUST 19

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

SATURDAY, AUGUST 20

*10 a. m. - 12 m. Staff rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Marshall N. Fulton.

*Open to the medical profession.

SEPTEMBER 12-14 — American Association for the Study of Goiter. Page 545, issue of March 24, and page 145, issue of July 28.

SEPTEMBER 12-15 — American Congress of Physical Therapy. Page 946, issue of June 2.

SEPTEMBER 19-22 — Congress of the International Society of Surgery. Page 180, issue of August 4.

SEPTEMBER 19-23 — American Association of Railway Surgeons. Page 181, issue of August 4.

SEPTEMBER 26 and 27 — Symposium on Occupational Disease. Page 145, issue of July 28.

OCTOBER 7 and 8 — Conference on Rural Medicine. Page 180, issue of August 4.

OCTOBER 8 and NOVEMBER 15 — American Board of Ophthalmology. Page 282, issue of February 10.

OCTOBER 17 and FEBRUARY 20, 1939 — American Board of Internal Medicine, Inc. Notice elsewhere on this page.

OCTOBER 17-21 — Clinical Congress of the American College of Surgeons, New York City.

OCTOBER 24-26 — Academy of Physical Medicine, Scientific Session. Washington, D. C.

OCTOBER 24 - NOVEMBER 4 — Graduate Fortnight of the New York Academy of Medicine. Page 181, issue of August 4.

NOVEMBER 5 — American Board of Obstetrics and Gynecology. Page 145, issue of July 28.

MARCH 27-31, 1939 — American College of Physicians. Page 36, issue of July 7.

BOOKS RECEIVED FOR REVIEW

The Construction of Vulcanite Applicators for Applying Radium to Lesions of the Buccal Cavity, Lips, Orbit and Antrum. Desmond G. Walker. 61 pp. London: John Murray, 1938. 5/-.

Les Ondes Électriques Courtes en Biologie. E. Schliephake. 96 pp. Paris: Gauthier-Villars, 1938. 30 Fr. fr.

Physiology of the Nervous System. J. F. Fulton. 675 pp. London, New York, Toronto: Oxford University Press, 1938. $6.00.

Practical Otology. Morris Levine. Second edition, thoroughly revised. 416 pp. Philadelphia: Lea & Febiger, 1938. $5.50.

Vitamin B_1 (Thiamin) and Its Use in Medicine. Robert R. Williams and Tom D. Spies. 411 pp. New York: The Macmillan Company, 1938. $5.00.

The Horse and Buggy Doctor. Arthur E. Hertzler. 322 pp. New York and London: Harper & Brothers, 1938. $2.75.

Studies on Prolonged Pregnancy in Rats. Finn Boe. 146 pp. Copenhagen: Levin & Munksgaard, 1938.

Zur Entdeckung der Insulinschocktherapie bei akuten Geisteskrankheiten, insbesondere bei der Schizophrenie. Julius Schuster. 90 pp. Budapest: Pester Lloyd-Gesellschaft, 1938.

Life and Letters of Fielding H. Garrison. Solomon R. Kagan. 287 pp. Boston: The Medico-Historical Press, 1938. $3.00.

The Surgical Treatment of Hypertension. George Crile. 239 pp. Philadelphia and London: W. B. Saunders Company, 1938. $4.00.

A Textbook of Gynecology. Arthur H. Curtis. Third edition. 603 pp. Philadelphia and London: W. B. Saunders Company, 1938. $7.00.

A Textbook of Histology. Alexander A. Maximow and William Bloom. Third edition. 668 pp. Philadelphia and London: W. B. Saunders Company, 1938. $7.00.